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A CONTINENTAL TANK LOCOMOTIVE.

We reproduce from the London *Engineer* an illustration of a tank goods engine built by the Societe de St. Leonard, at Liege, from the designs of M. H. J. Vassen, for the Liegeois Railway. Its principal dimensions are:

Contributions.

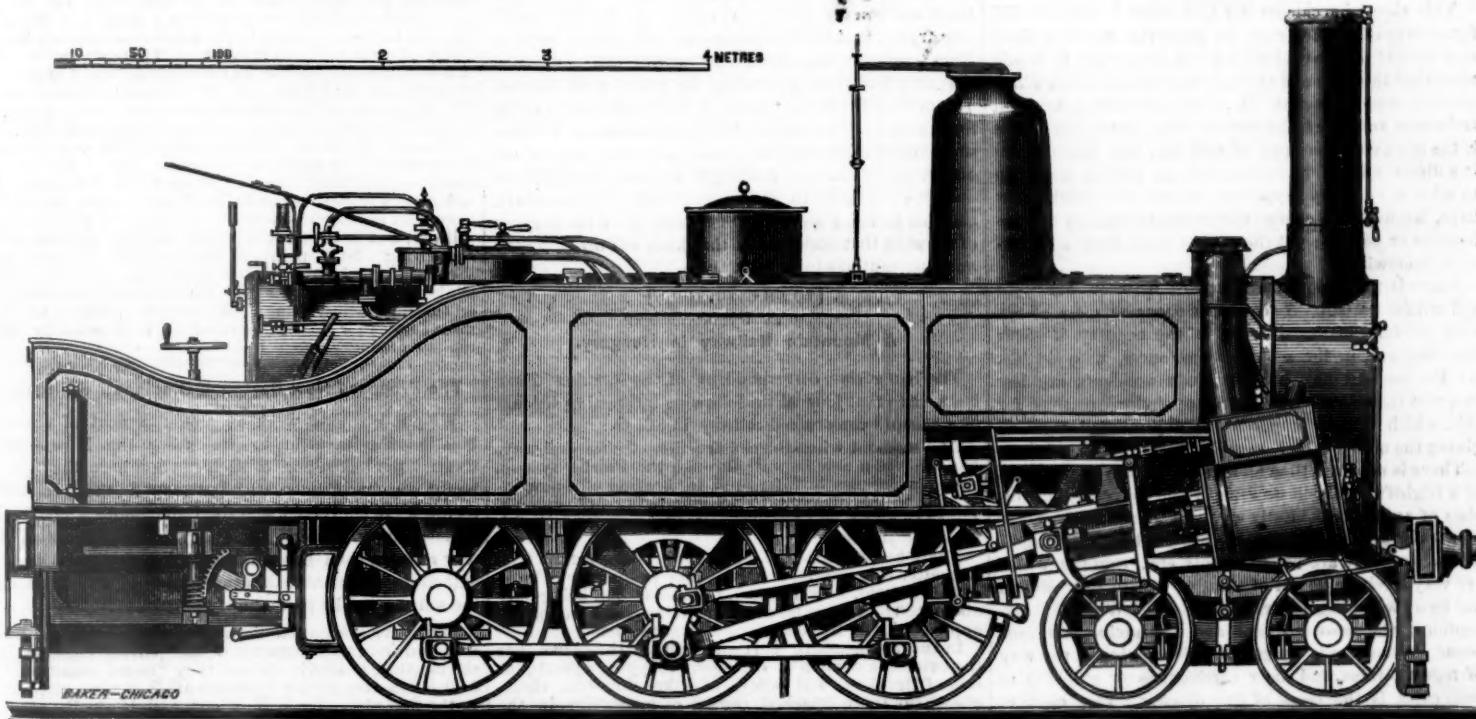
A CHAPTER ON RAILROAD ACCIDENTS.

BY WM. S. HUNTINGTON.

To say that all railroad accidents can be prevented would be putting the thing rather too strong; but to say that a large portion of them may be avoided would not be extravagant. Railroad accidents are of different classes, so to speak, and there are some classes of accidents which may all, or nearly all, be prevented by means within the power of every railroad company. And there is one class, apparently caused by acts of Providence, which cannot be prevented by any human power or forethought. In the latter class may be reckoned such as are caused by sudden and severe

the disaster was owing to gross carelessness on the part of some one and charge the officers of the road with the blame.

The daily papers throughout the country have of late, or in fact for years past, been very severe on the railroad managers in their accounts of what they usually term "the last railroad murder." In many cases, however, they are none too severe; and altogether it would not be fair to suppose that any railroad manager would be guilty of willful murder, yet the frequency of accidents on some roads makes it appear that they have little regard for human life, or the interest of the road they manage. But it would be well for newspaper men to bear in mind that in railway operations, as in every other business, accidents will happen in spite of every effort to prevent them; and in such cases it is hardly worth their while to occupy two or three columns in



Tank Goods Locomotive, Chemin de Fer Liegeois.

diameter of cylinders, 18.11 inches; stroke of piston 24.016 inches; diameter of driving wheels, 4 feet, 2.8 inches; diameter of leading wheels, 2 feet, 11.43 inches.

A Commercial Problem.

A glance at a statement of the Eastward movement of flour and grain from the three principal lake ports for the week ending July 9th, published in our commercial department, ought to be sufficient to induce every grain dealer in the city to attend the Rochester Canal Convention on the 15th. Of the total amount of wheat, 770,638 bushels, shipped from Chicago, Milwaukee and Toledo by water for the week, 321,900 bushels is destined to pass through the Welland Canal; and of this last amount nearly 200,000 bushels is consigned to Canadian ports and will ultimately reach Montreal through the St. Lawrence River. In addition to that significant fact, there were 2,847 barrels of flour and 40,269 bushels of corn shipped to Port Huron, and 13,956 bushels of corn to Sarnia, all destined to go through to Montreal in bond via Grand Trunk Railway.

If the people of this State do not bestir themselves in the matter of retaining our commerce, it is only a question of time when our more enterprising neighbors will have diverted our entire trade. A few years ago the trade referred to above was scarcely worth taking into consideration, and now it amounts to nearly fifty per cent. of that which reaches tide water through the State of New York.—*Buffalo Commercial Advertiser.*

storms, which tear away embankments or precipitate rocks and earth upon the track in deep cuttings or on mountain sides. This class of accidents has been previously mentioned, or rather, track-men have been cautioned to be vigilant in case of storms, and prevent accidents as far as possible by giving warning to trains in case of danger. There are, however, cases when it would seem that the utmost vigilance on the part of track-men would not prevent disaster. Many times men have been sent over the road, to see that all was safe, just before a train was due, when yet during the short space of time between his passing a certain point and finding it safe and the time for the arrival of the train at that point, a violent storm has swept away the track, and the train has been precipitated into an awful chasm. Accidents of this kind are not infrequent, and there does not seem to be any way of preventing them except by stationing men along the line in places where such accidents might occur, to warn trains of danger. This has been and is now practiced on some roads, yet notwithstanding this precaution, accidents of this kind have occurred. The illustrated newspapers have interested the public on many occasions with engravings of frightful disasters of this kind, taken from a sketch made on the spot by "our special artist." These illustrations are usually accompanied with a very minute description of the catastrophe and generally wind up with the statement that

abusing the manager of a railroad. All such disasters as are caused by act of Providence, of course, cannot be prevented by any human agency, and no one should be blamed for them. Among these may be classed such as are caused by tornadoes, lightning, and those sudden and awful rain storms that sometimes visit various parts of the country and destroy hundreds of feet of embankment in a few moments. Fires may, under some circumstances, be properly put in this class of accidents, and there is another grade of this class, viz: the breaking of wheels, axles, &c., which cannot always be avoided. Although they may have been selected with great care and thoroughly tested in regard to their strength, they will at times give way without any apparent cause. Such accidents may be classed as unavoidable, and no one can fairly be blamed under such circumstances. A jury would be justified in calling it an "act of Providence." There are other acts of a kindred nature which may also be classed as unavoidable, such as the breaking of car couplings, for instance. It is generally the custom to make car couplings of sufficient strength to withstand a much heavier strain than they are ever expected to be subjected to. This is done as a measure of safety, and the idea is correct; but the constant friction to which the links are exposed will, after a time, wear them so as to weaken them to such an extent that they frequently fail to bear the strain imposed upon them. Trains have parted while ascending

a heavy grade, when, if there was no brakeman on the detached cars, they would of course run back down the incline. Then if a train is following, there is likely to be a collision. These accidents have been rather more numerous than is generally supposed. Years ago accidents of this kind were more frequent than now, as there is a general rule adopted on all roads to station brakeman on the rear car to prevent accidents of this kind. This precaution does not always prevent collisions, for the reason that there are often so many cars on the detached portion of the train that one brakeman cannot control them, and the train following, running a little closer to the train ahead than the orders allow, a collision is the result. In this case it may be said that the accident is clearly the result of carelessness, and in some cases that is the real cause of the accident. The rear brakeman, by leaving his post for a short time to have a friendly chat with his next brakeman, may be and has been, the cause of much mischief. It not unfrequently happens that a coupling link works the pin out when the train is on a descending grade, and thus the train is divided. This cannot be charged to carelessness, but if any thing serious results it is very likely to be so charged, or charged to neglect, which amounts to very much the same thing. Of course no amount of care and attention would prevent the pin working out, but it might prevent serious results from it. In regard to the breaking of links, that, no doubt, is in most cases due to their becoming much worn and bent and twisted, which weakens them to such an extent that they are unsafe. Doubtless many accidents are caused by using links in this condition. As soon as a link shows the least sign of weakness, it should be laid aside.

COLLISIONS.

This class of accidents (for they occur in so many different ways that they may be properly styled a class) may be said to be avoidable; yet in many cases it would seem that they are one of those mysterious affairs which nothing could prevent. A misunderstanding between train men and others interested in the running of trains is the most common cause of collision, and when there is a direct misunderstanding, and all parties work up to what they really suppose to be right, it would, perhaps, be unfair to charge the accident resulting to carelessness or neglect; yet there must have been an oversight somewhere.

There is an important difference between oversight and willful neglect. As collisions occur on some of the most carefully managed roads in the country, it seems that they are, under some circumstances, unavoidable. At the present day, however, such accidents are less frequent than formerly. There are obvious reasons for this, which will be apparent to any railroad man on giving the matter a little thought.

There is now and then an account in the newspapers of a frightful collision on some of the old roads, but this class of accidents is mostly confined to new roads, where no regular system of operating has yet been established, and where there are ballast trains, etc., running, which are very likely to be out of time, or where they should not be on when regular trains are due. With few exceptions, the most frequent and destructive collisions occur on new roads, by gravel trains getting in the way of regular trains, and sheer carelessness or stupidity in such cases is the cause of the disaster. This class of accidents cannot be attributed to the mysterious acts of Providence. Any accident that is caused by ignorance, or neglect, or stupidity may be avoided. If superintendents of railroads would exercise more caution in the selection or appointment of men to responsible positions (and what position is not a responsible one?) there would be fewer collisions. It has become the custom of late, with most railroad companies, to put a certain class of foreigners in positions which, for the profitable management of the business, require more intelligence than they generally possess. There are men of this class in charge of working trains on many roads who can scarcely tell the time by a watch. This is a specimen of the "economy" before mentioned, and probably no one has practiced this kind of economy for any length of time, who has not seen that it is not the right kind. Probably there have been more collisions on account of gravel or wood trains being out of place than from any other cause, and it is therefore important that none but intelligent, wide-awake men be put in charge of working trains.

In regard to that class of collisions which may be considered unavoidable, it may be proper to mention here that many serious collisions have occurred in time of heavy fog, when, in the night, a light could be seen a sufficient distance to prevent collision, in case anything should happen to a train which has a train following. Of course if the leading train, on meeting with an accident, were to send a light back far enough, it would prevent collision, if the light could be seen at all; but when a following train runs rather close to the leading one, there would hardly be time enough, after a

serious accident, to send a light back far enough in time to prevent a collision. There are various ways in which a collision might occur in time of a fog, when, if the weather had been clear, it would not have happened.

There is a well managed road in one of the Middle States on which an accident never occurred, save one; that is to say, no collisions, run-offs, or anything of the kind ever happened. The road had been in operation for about twenty years, and not a passenger was ever killed or injured. When all at once, first-class smash-ups occurred, partly in consequence of a misunderstanding, and partly because of a thick fog which was prevailing at the time. It was usual for an express train to arrive at the terminal station, when another fast train pulled out and went over the road in the opposite direction. Four miles from the terminal station was another station, where, on certain occasions, if the train coming in was a little late, the two trains would meet. On the occasion referred to the train coming in was only a trifle late, so that it was concluded to proceed to the next station. The conductor of the train going out had by some means got the idea that he was to meet the train at the station before mentioned, and the conductor of the train going in understood that he was to reach the terminal station as soon as possible. The consequence was that the trains met with a fearful crash. As the engineer of each train was making his best time to get to the station before the other train came out, the trains met at a fearful velocity; probably there was never before a collision between two trains running at so high a velocity; yet, strange as it may seem, the loss of life was but trifling, compared to that occasioned by other accidents of the kind, although both trains were fearfully wrecked, and there was a severe loss to the company. In this case it was argued that the conductors of both trains were to blame, yet they were guided by exactly the same rules that they had been practicing for years with success. The main point in the argument for the defence was the fog. It is doubtful, under the circumstances, whether those trains could have been run in a clear day at the same velocity, without coming in contact. But it is not our province here to discuss questions of this nature, and this accident was referred to merely for the purpose of showing that accidents of that kind will occur in spite of all precautions to prevent them.

[TO BE CONTINUED.]

A Mountain Railway in Hungary.

The Hungarian correspondent of the *London Times* has sent to that journal the following interesting account of a cheaply constructed railway in Silesia:

At a moment when the construction of cheap railways has received a new impulse through the Fairlie system, your readers may be interested in hearing of a new invention in this direction by a Hungarian gentleman, Mr. Lopresti, which was tested a few days ago, and with complete success.

There has been, indeed, for the last two years, a trial line, after this system, in use on the property of Archduke Albrecht, near Teschen, in Silesia; but, being only about 2,000 yards in length, it gave no measure of the applicability of the system on a larger scale.

In the northeastern part of Hungary the crown has the extensive domain of Diriggoi, occupying a great portion of the slopes and valleys of Pike Mountain chain, one of the three detached ranges of mountains in the heart of Hungary. The chief wealth of this domain consists of the fine oak and beech woods, which have been, however, hitherto so badly managed that they not only yielded no revenue, but scarcely paid their cost. Since the Hungarian Ministry was constituted, Mr. Lonyay, the Minister of Finance, has directed his special attention to these crown domains. One of his creations on this field is the extension of the primitive iron works of Diriggoi into a large establishment for the manufacture of refined iron. Partly to supply fuel for this, and partly to facilitate the transport of the wood into the neighboring country of the Theiss, a line of about five English miles in length has been constructed on one of the mountain valleys to the top of the ridge. The tracks were so wretched and steep, and the line so much curved, that it was quite impossible to bring down the wood by ordinary means without enormous expense. So on this point the new system had been tried.

The line requires no permanent way at all. Square beams of oak 8 inches high and 14 inches broad are laid on the ground, and only at rare intervals, where the great unevenness of the ground absolutely requires it, cross sleepers are laid under it. Each of these longitudinal beams has a length of 18 feet; on the two edges of the beams are the rails, which are only 2 inches broad, and so thin that they weigh but 1 lb. per foot. These beams and rails may be taken up at any moment, and the railway thus relaid whenever it is required. The trucks run on two pairs of wheels 8 inches in diameter; the bodies of the trucks are about three times the width of the rails, and are placed so low on the wheels that they have just room to pass over them. This, in itself, bringing the weight down so near the line is a great guarantee against any accident arising from the narrowness of the gauge and the severity of the curves. Beside this, there is a double brake on each truck, the ordinary brake, and then, before and behind, a couple of side wheels running outside the gauge, which may be pressed against the sides. All these precautions are taken

to insure against any overturning, for on parts of the line about half of the truck is hanging over precipices, and running at the rate of some twenty to thirty miles an hour down hill.

The top of the mountain ridge is some 700 feet above the level of the valley, where the works are; for about one-third of the distance of five English miles the gradient is but slight—1 or 2 in 100: but, further, there are gradients of not less than 1 in 16, and that for considerable distances. Even bolder are the curves. The line winds along the sides of hills so small that there are curves of a radius of 12 yards, and those of 20 to 22 yards radius follow each other in quick succession. The trucks are taken up empty by horses, and when filled are allowed to come down by their own impetus. The arrangement of the weight and the system of brakes is so perfect that the train may be stopped when on a gradient of 1 in 7, and going at the rate of 20 or 30 miles an hour, within 6 to 8 yards. The five miles cost £2000, and after the experience now gained the work may be done for about £200 per mile.

As you may gather from the foregoing description, the object of the line in the present instance is traffic one way. And already, in this respect, it is invaluable in a country like Hungary, which possesses great mineral wealth and forests of inestimable value, which will become accessible at a small cost by these means, where as otherwise they would be either altogether lost, or at least imperfectly got at.

According to the calculations made since the line was opened, the square measure of wood, the transport of which cost from 4 to 5 florins, and at times could not even be transported for that sum, can now be sent down for less than one-half, and in this the sinking fund for the money invested is included. As soon as the woods along the line are cut down the line will be taken up and relaid elsewhere.

But the invention is but half complete, for the inventor has likewise designed a locomotive for his line, which will dispense with the application of horse power, and will give the invention its full value. He has not had the means of constructing his locomotive, but now a company is to be formed, which will carry out on a large scale what answers so well on a small one. Incomplete as the system is up to the present moment, it is already of great value to Hungary. There are miles and miles of mountain forest which decay for want of means of transport, and which may be utilized by this system. The Direction of the State domains has already decided to apply the system to several other domains, and others will no doubt follow. But the utility of this new system is not confined to mountain districts. There are those immense Hungarian alluvial plains, where for miles and miles not a trace of stone is found, and where an ordinary road in some cases costs as much as an ordinary railway, and is then not of much use in autumn and spring. So desperate is the case, that in some instances people have been driven to adopt the so-called clinker, or paved brick road. The laying down of lines on the Lopresti system would almost amount to the same sum as for the transport of the road metal for the regular road.

The Proposed New Dayton & Cincinnati Railroad.

We published last week an announcement of a combination of railroad men representing the New York Central, the Lake Shore & Michigan Southern, the Cleveland, Columbus, Cincinnati & Indianapolis, the Cincinnati & Sandusky & Cleveland, and the Indianapolis, Cincinnati & Lafayette companies, for the purpose of building a new railroad from Dayton to Cincinnati. The Cincinnati *Railroad Record* makes the following comments on the scheme and its promoters:

The above is a special dispatch to the Cincinnati *Gazette*, and from the character of the parties engaged in the meeting, it is evident that they "mean something." Still, it is a very curiously mixed affair in some respects. In the first place, Jacob W. Pierce and Rush R. Sloan, of the Cincinnati, Sandusky & Cleveland road, but a few days ago concluded a contract with the magnates of the New York Central to do their Cincinnati business over their road *via* Clyde, thus taking it away from Selah Chamberlain, of the Cleveland, Columbus, Cincinnati & Indianapolis Railroad; Mr. Sloan evidently expecting to do the business over the Cincinnati, Hamilton & Dayton road under their present contract. This, however, will not be permitted by the Erie, who have a sort of prior claim on the track of the Cincinnati, Hamilton & Dayton. It is understood now that they will, for the present, do the business over their line from Springfield *via* Xenia and the Little Miami Road. The New York Central business has heretofore been done over the Cleveland, Columbus, Cincinnati & Indianapolis to Columbus and the Little Miami; the latter road has recently passed into the control of the Pennsylvania Central, and hence supposed to be inimicable to the interests of the Cleveland, Columbus, Cincinnati & Indianapolis as well as the New York Central. We cannot see what is the advantage gained by the New York Central, in sending the business *via* Clyde, on the Cincinnati, Sandusky & Cleveland and the Little Miami, over the old route *via* Cleveland, Columbus and the Little Miami road. Are they not still at the mercy of the Pennsylvania road, just the same?

But why this harmony between the Cincinnati, Sandusky & Cleveland and the Little Miami for business from Clyde and Springfield to Cincinnati, and the apparent "bad blood" in constructing the parallel road from London to Columbus? the completion of which we understand is assured by this arrangement. This would be *square* competition to the Little Miami! Possibly, in their modesty, they propose to use the track of the Little Miami for their construction trains! This surpasses Barnum's "happy family."

Besides, what course will the Hon. Rush R. Sloan, President of the Cincinnati, Sandusky & Cleveland Railroad, and his company pursue in reference to his suit now pending before our courts, for the recovery of the

principal and interest of the bonds of the Dayton Short Line road held by them, and agreed to be surrendered as part of the purchase price of the right of way and other interests of that corporation between Dayton and Sharon, when the Cincinnati, Sandusky & Cleveland company was operating under the title of the Dayton & Eastern Railroad, and under which name they issued a large stock and bond list, some of which is still in circulation; they actually did a large amount of work on the route, all which was abandoned on the completion of their contract with the Cincinnati, Hamilton & Dayton, and they then turned around and sued for the cash paid and the value of the bonds and the accumulated interest. They are now going to *build the road*. The managers of the Cincinnati, Sandusky & Cleveland evidently intend to be on the safe side of the game, for they only play "heads I win, tails you lose!"

But then it is "an ill wind that blows nobody any good," and we have full faith that if our friend R. M. Shoemaker takes the contract to make the line, it will not only be built in an inconceivably short time, but he will "make something handsome" out of it. So mote it be!

The International Bridge at Buffalo.

The following is the text of the International Bridge Act amended by the Senate and passed by both Houses of Congress:

An act to authorize the construction and maintenance of a bridge across the Niagara River.

SECTION 1. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That any bridge and its appurtenances which shall be constructed across the Niagara River, from the city of Buffalo, New York, to Canada, in pursuance of the provisions of an act of the Legislature of the State of New York, entitled "An act to incorporate the International Bridge Company," passed April the seventeenth, one thousand eight hundred and fifty-seven, or of any act or acts of said Legislature now in force amending the same, shall be lawful structures, and shall be so held and taken, and are hereby authorized to be constructed and maintained as provided by said act and such amendments thereto, anything in the law or laws of the United States to the contrary notwithstanding, and such bridge shall be, and is hereby declared to be an established post road for the mails of the United States; but this act shall not be construed to authorize the construction of any bridge which shall not permit the free navigation of said river to substantially the same extent as would be enjoyed under the provisions of said act and the amendments thereto, heretofore enacted and now in force. Provided, nevertheless, that the location of any bridge, the construction of which is hereby authorized, shall be subject to the approval of the Secretary of War, but not to be located south of Squaw Island. And provided further, that such bridge shall have at least two draws of not less than one hundred and sixty feet in width in the clear between the piers, which shall be located at the point best calculated to accommodate the commerce of said river, and the piers of said bridge shall be parallel to the current of said river.

SEC. 2. And be it further enacted, that the bridge herein named shall be subject in its construction to the supervision of the Secretary of War of the United States, to whom the plans and specifications relative to its construction shall be submitted for approval; and all railway companies desiring to use the said bridge shall have and be entitled to equal rights and privileges in the passage of the same, and the use of the machinery and fixtures thereof, and of all the approaches thereto, under and upon such terms and conditions as shall be published by the District Court of the United States for the Northern District of New York, upon hearing the allegations and proofs of the parties, in case they shall not agree.

SEC. 3. And be it further enacted, that the right to alter or amend this act so as to prevent or remove all material obstructions to the navigation of the said river by the construction of the said bridge is hereby expressly reserved.

The Hannibal Bridge.

At 4 o'clock yesterday afternoon the location of the great bridge over the Mississippi, at Hannibal, was determined upon, and henceforth the energies of the engineers will be exclusively devoted to its construction.

The bridge is to strike the western bluff at a point 1,100 feet above Soap Hollow, and run thence directly across the river to the Illinois shore, at right angles with the current. The distance from shore to shore is 1,580 feet, and the structure will consist of eight iron spans, resting on nine massive pieces of masonry.

The first span (counting from the western bank) will be 250 feet; the second and third will be draw-spans, each 100 feet in the clear; the fourth span will be 250 feet, and the fifth, sixth, seventh, and eighth will be 180 feet each.

The first piece of masonry, or the western abutment, will of course be built upon a rock foundation; the second, or first pier proper, will be built on solid rock at a depth of twenty-three feet below low water; the second, or draw pier, is to rest on the rock twenty-eight feet below low water; the third pier will rest on piles driven to the rock, and all the others, including the eastern abutment, will be built on piles driven twenty feet into the sand, and thoroughly protected with rip-rap. All the piers are to be of the best cut masonry, and the design is somewhat unique and very pretty. Some idea of their magnitude may be had from the fact that the draw pier alone will contain 2,000 tons of masonry.

In front, or above the draw pier is to be an immense ice-breaker, a timber structure 94 feet long and 32 feet wide, which will contain seven thousand tons of rip-rap. This monster will be built on shore, floated into position, sunk to the rock bottom and "loaded." The largest steamer may dash herself to pieces against it, but will never move it.

The bridge is to be a "quadrangular girder," commonly known as the Pratt truss, entirely of iron, save the ties and stringers, and will be ten feet in the clear above high water mark. A rolling load 2,500 pounds to the square foot, will not depress such a structure over one and five-eighths inches in the centre of a span. The contract, which will be let within a week, requires that the work

shall be ready for the track within eighteen months, and it is confidently expected that but fifteen months will be requisite. The plans and specifications were forwarded to New York to-day.

The draw is to be worked by a small steam engine, and it is claimed that, so perfect will be its adjustment, that two men can open or close it in one minute when there is no wind.

But how to get through, over or around the huge rock bluff on the western bank—the summit of which is 150 feet above the river, at the present stage? This has been definitely decided upon. Future travelers, after crossing the magnificent bridge from the Illinois shore, will dash at once into Cimmerian darkness, and after threading a nine-degree curve for 350 feet, through a tunnel twenty feet high and eighteen feet wide, cut through solid rock and faced with solid masonry, will emerge, cross the northern branch of the Soap Hollow Ravine, skirt the bluff southwardly, cross the southern branch, shoot through a thirty feet cut in the bluff, south of the powder magazine, and find themselves gliding along the bank of the river to the levee.

From the west the bridge will be approached on a descending grade of seventeen feet to the mile; and from the east on an ascending and equal grade, over an embankment.

At present stage the greatest depth of water in the channel is 30 feet, and the velocity of the current is 2½ miles per hour.

On Tuesday it was thought Soap Hollow would be the objective point off this side of the river, but more careful surveys proved it to be impracticable.

Mr. Warren Colburn, consulting engineer, states that it is possible the company may yet consent to build a wagon bridge. The additional cost, of course, cannot be given, but a rough estimate might be set down at \$75,000.—*Hannibal Courier, July 7.*

Farewell Address of President L'Hommedieu.

A special meeting of the Board of Directors of the Cincinnati, Hamilton & Dayton Railroad Company was held on Monday, July 4, the day on which the resignation of Mr. L. Hommedieu was to take effect.

The board having been called to order, and the heads of the various departments present, Mr. L. Hommedieu in the chair for the last time, read to them the following farewell, after which he conducted his successor, D. McLaren, Esq., to his vacated post:

PRESIDENT'S OFFICE, C. H. & D. R. R. COMPANY, CINCINNATI, July 4, 1870.

Gentlemen of the Board of Directors and Heads of Departments of the Cincinnati, Hamilton & Dayton Railroad Company.

I have called you together this morning for the purpose of bidding good-bye to you on this last day of my Presidency, and on the eve of my departure for Europe.

It is both a pleasant and painful occasion to me. Painful to dissolve my intimate connection with you, and to surrender to the keeping of others the trust long ago committed to me, and to fulfill which has cost me years of labor and anxious thought; but pleasant for the recollection of the many years we have labored together to achieve the same objects, working in full harmony, "shoulder to shoulder," and the final success that has crowned our efforts.

Pleasant to know that the Cincinnati, Hamilton & Dayton road has conferred benefits upon its stockholders, upon the cities of Cincinnati, Hamilton and Dayton, in honor of which it was named, and upon all the intervening country, which it has made more productive and beautiful than the valleys of the Napa and San Jose, and filled with a population prosperous, refined, intelligent and happy, requiring a train of cars to be run almost every hour in the day, where in the beginning of our enterprise a stage coach sufficed for all its wants.

Pleasant to know that so many of our officers and employees, who were engaged with me twenty years ago, have proven efficient and faithful to their trusts, and have earned and are receiving the confidence of the stockholders and community at large. Pleasant to know that their integrity and experience has fitted them for higher positions than they at first occupied; and pleasant to realize that we have stockholders disposed to reward long and faithful services by the selection of those who have grown up with the road for its future management.

I congratulate you on your selection of Mr. D. McLaren as my successor in the Presidency. He is a man of great railroad experience and ability, whose judgment in selecting and directing men has been fully demonstrated by the manner in which the various duties of his several departments have ever been performed. To him, and to Mr. F. H. Short, our Secretary and Treasurer, as well as to you all, am I largely indebted for whatever success has been attained by me in building up the business and prosperity of our road. They have earned the positions they now occupy. That their future will be as fully rewarded as their past, I have not a doubt

Very truly yours,

S. S. L'HOMMEDIU, President.

The Suspension Bridge & Erie Junction Railway.

This is the name of the road about which so much has latterly been said, to be constructed for the purpose of connecting the Erie Railway with Niagara Falls, Suspension Bridge, the Great Western of Canada, etc. Some facts recently obtained in relation to this new enterprise will be of general interest. First, we give a list of the Directors of the road, as follows:

Directors—Wm. M. Tweed, Jas. Fisk, Jr., Henry Harley, A. S. Divan, E. A. Buck, Wm. R. Barr, B. W. Blanchard, Edwin Elbridge, H. N. Otis, Hugh Smith, Henry Thompson, Charles G. Slisson, and O. H. P. Archer.

The following gentlemen are the officers elected, viz: President—Edwin Elbridge, of Elmira.

Vice-President—A. S. Diven, of New York.

Secretary—Henry Thompson, of New York.

Treasurer—O. H. P. Archer, of New York.

This new road will leave the Erie Railway track at a point two miles from the depot of the company on Exchange street, and cross Batavia street near the Pine Hill cemetery; thence proceeding northwesterly, it will cross Main street a few rods beyond, or northeast of, the old Burt Scott homestead, where a depot will be erected on the property of Mr. M. B. Sherwood. From this point the road will proceed in a direct line to Tonawanda, crossing the creek about one hundred rods north of the old Canandagua Railroad bridge. Thence to Niagara Falls—a distance of eight miles—the track will run nearly parallel with that of the Central road; and thence to Suspension Bridge through lands owned by Horace Day, Esq., and others; and there connect with the Great Western Railway of Canada.

The contract for grading, masonry, bridging, &c., has been let to Messrs. Harris, Bros. & Co., of Springfield, Mass., to be completed in one hundred days from the 30th of June last.

The road is to be laid with three rails, so as to conform with the gauges of the Erie, N. Y. Central, and the third rail of the Great Western. The iron for the whole length of the new road has been contracted for, and will be delivered immediately. The spikes have also been purchased, from Messrs. Pratt & Co., of this city.

On the 1st inst., work was first commenced upon the road, on the old Burt Scott place where a large force of men have been operating, and where will be required about twelve thousand cubic yards of rock cutting. The company have secured the right of way for the distance of six miles, between Tonawanda and Niagara Falls, on which section another large force will be set at work next week. The remainder of the right of way has already been secured by purchase, or will be obtained without delay.

The company confidently expects to have cars running on the new road by the first day of December next. When completed, the "Suspension Bridge & Erie Junction Railway" will, it is hardly necessary to state, be handed over to and constitute part of the Erie Railway.—*Buffalo Commercial Advertiser.*

Suspension Bridges.

There is a close resemblance in the relation of cast-iron bridges to railway traffic to that occupied by those of the hanging or suspension type. The similarity is not, however, fully borne out, for in this country there are numerous bridges of cast iron, which have served the purposes of conveying locomotive traffic for many years, whereas there is not a single instance in which a suspension bridge has done duty in that capacity. The difference, therefore, is that the use of cast iron for railway bridges is restricted within narrow limits; that of the suspension principle prohibited altogether. Where the analogy exists most forcibly is in the reason or cause of this restriction and prohibition. It will be found to be identical in both instances and to have emanated from the circumstance of actual failure having attended both of these descriptions of structures in the early days of steam locomotion. Many may be inclined to argue that, bearing in mind the very imperfect manner in which the theory and practice of iron bridge construction was understood at that time, this circumstance is really of little value, and that the bridges may be more sinned against than sinned. It is possible that there may be some amount of truth in this argument, so far as regards the employment of cast iron, but it does not extend to suspension bridges. The complete unsuitability of that principle to the purposes of a heavy isochronously moving load was demonstrated too palpably to allow of any hesitation respecting its rejection in future for that purpose. In the early part of his professional career Sir William Fairbairn was called upon to devise means for strengthening one of these suspension structures that had been erected on a line of railway. For this object a staging was erected, and piles driven into the ground, when the undulations into which the platform of the bridge was thrown by the passage of a train, caused so tremendous a vibration that it actually drew the piles out of the ground. The point worthy of notice in this failure presents an aspect different to that to which we shall presently draw attention when touching upon cast-iron bridges. It indicates unmistakably the radical unsoundness of the principle when employed for the conveyance of loads that have a tendency not only to create but, in conjunction with the system of structure adopted, to accumulate vibration and oscillation. This unfortunate predisposition to accumulate vibration a *crescendo* from a moving load is the bane of the suspension principle. If the cause, such as the measured tramp of a number of people, the march of troops, or the passage of cattle, be continued long enough, the bridge would infallibly yield to the disturbing action, and the chains give way. A suspension bridge may be said to contain in itself, by virtue of the principles which govern its construction, more than other description of bridges, the elements of self-destruction.

Let us now investigate a little the particulars of the failures that attended the employment of cast iron and have led to its partial abandonment by most engineers. The most notable failure of this kind that occurred was the giving way of a compound trussed cast-iron girder carrying the railway over the River Dee, near Chester. This failure was of a different character to that we have mentioned attended the suspension bridge, and was undoubtedly the result of an unscientific and ignorant method of construction. The span of the girder was somewhere about 90 ft., and as there was no precedent for erecting a simple cast-iron flanged girder over so great an interval it was determined to truss it with iron rods in a manner similar to that commonly done with balks of timber. Now a very little consideration of this combination will convince the most sceptical of its unreliable and unsatisfactory nature. Theoretically, the girder is in compression, while the rods forming the trusses are in tension, and the assumption is that when the former is strained to a certain extent the latter become so also, and thus relieve it of a certain amount of

strain. Were this actually the case in practice, and were also the extension and contraction of cast iron exactly identical with that of wrought, there would be no more to be said on the subject. The thing would be done, and the limit to which this combination would extend would be very considerable. To go a step further with this theoretical assumption, and suppose the compound girder to be rested up to the breaking weight it is taken for granted that at the moment the cast iron was yielding to the strain of compression to which it is subjected, the wrought-iron rods would also be on the point of being torn asunder by the tensile strain. This assumption is still more fallacious than the former, yet upon this is based the whole argument in favor of the employment of these compound girders. It is but right to remark that they are rarely or never used now in any save very insignificant examples. As a result of this failure compound cast-iron girders stood condemned, and very justly too. But the result did not terminate here. Instead of the condemnation extending only to such specimens of iron work as constituted that which failed, more or less suspicion was thrown upon the employment of cast iron for the purpose of railway traffic, whatever form the girders might take. Engineers began to be distrustful of a material that, unfortunately for its reputation, had failed in other instances and under different conditions than those alluded to, and hence many refused to employ it in cases for which it was not eminently adapted on the scores of simplicity and economy, but was unquestionably the proper material to adopt. Those who are well acquainted with the specimens of cast iron construction that existed previous to the series of elaborate experiments undertaken by the late Mr. Eaton Hodgkinson, not only will not wonder that they occasionally broke down but will be astonished how they managed to last the time that some of them have done. This is only accountable for by the fact that science was replaced by abundance of material. The designers were probably well aware of the futility of all their attempts to produce a correctly proportioned girder, and they, consequently, resolved upon the wise course, under the circumstances, of making it big enough and heavy enough.

While it must be admitted that hitherto there are not sufficient grounds to justify the adoption of suspension bridges in situations where the traffic is of the variable character mentioned above, it cannot be laid down as a law that they will never be capable of fulfilling that duty. If the tendency to oscillate in an increasing ratio could be checked something tangible would be effected. The fear of this is so well recognized in districts where suspension bridges are used for ordinary road traffic that when soldiers traverse it they are commanded to "take open order," so as to destroy that regularity of step which has so dangerous an effect upon the structure. When causes so comparatively slight as these have to be taken into consideration it is easy to imagine what the disturbing influence of the regular violent hammering of the driving wheels of a heavy locomotive would prove on a suspension bridge of long span. Reference is usually made when this subject is touched upon to the Niagara suspension bridge as a proof that this principle has been successfully applied to railway traffic. This argument is specious and shallow to the last degree. It is true that railway cars do creep across the Niagara bridge at about six miles an hour, but this does not constitute that bridge a railway bridge in the proper sense of the term. When suspension bridge is erected over which a mail express can rush at a speed of fifty miles per hour, the problem will be solved, the present insurmountable difficulty overcome, and we shall have in reality a "rigid suspension bridge." In the eyes of English engineers it is a mere farce to put forward the Niagara bridge as a successful example of the application of the suspension principle to the conveyance of locomotive traffic.

Besides the structure in such a mass of stays, struts, and braces above and below that it is scarcely possible to consider it in the light of a genuine suspension bridge. In all probability the design was originally based on that principle, but the exigencies of actual practice required it to be so materially modified that it retains very few of its normal characteristics. There is no difficulty in designing a bridge on the suspension principle, and subsequently introducing such elements of trussing and bracing that may ultimately convert the whole structure into a girder bridge. This is really what occurs when a suspension bridge is stiffened to such a degree that it cannot possibly vibrate, oscillate, or deflect. But when this is accomplished, not only is all the value of the principle nullified, but the amount of material required is a great deal more than what would suffice to build a bridge on another plan altogether. Unless the principle selected be all sufficient for the intended purpose, there is nothing gained by introducing modifications which are a violation of it. It will be invariably found that if the principle upon which a bridge be designed be unsound and inadequate for its duty, it is a very expensive and troublesome proceeding to add such an amount of stiffening and bracing as will enable it to fulfil satisfactorily the object for which it was intended. Even supposing this to be accomplished effectually, the structure will never be of a reliable character, for it will be depending not upon any recognized valid method of construction but upon a factitious arrangement of bracing and made-up contrivances that may by dint of ingenuity on the part of the designer answer the purpose temporarily, but cannot impart that permanent stability and strength which can only result from the proper combination of theory and practice, of science and experience. It would be too much to assert that suspension bridges will never be rendered available for the conveyance of railway traffic, but it is not too much to assert that the principle *per se* is not adopted to such purposes.—*London Mechanics' Magazine*.

Davenport & St. Paul.

The first rail was laid on this road at Davenport on the 9th inst., and the work progresses rapidly.

The Fairlie Engine.

During last week a series of trials with the Fairlie engine "Little Wonder," running upon the Festiniog Railway, were commenced for the purpose of affording an opportunity to several gentlemen, representatives of the Public Works Department in India, of satisfying themselves of the merits of the system, especially upon narrow gauge railways as compared with engines of the ordinary type, represented on this occasion by the "Welsh Pony." The trials included also an investigation of the performance of the "Progress" upon the Mid Wales Railway, and of the "Mountaineer" on the Burry Point and Gwendreath Valley Railway. The programme, in fact was very similar to that upon a previous occasion, when the Russian Railway Commission that recently visited this country, paid a visit to the Festiniog and Mid Wales Railway, and the visitors upon the present occasion expressed very similar opinions to those made public at the time to which we refer.

The experiments commenced with some short trips, for the purpose of showing the superior steadiness and freedom from oscillation of the "Little Wonder," after which the "Welsh Pony" was started from Portmadoc with a train consisting of 77 loaded wagons, weighing, with passengers, 193 tons 13 cwt. 3 qr., the tare weight being 48 tons 5 cwt. Adding the weight of the engine and tender (11 tons 5 cwt.) the gross total weight of the train was 204 tons 18 cwt. 3 qr., and its total length 711 feet. The engine started with a steam of 140 lbs., which had risen, at the foot of the embankment, to 150 lbs. The minimum pressure during this run was 132 lbs., and the pressure at stopping 138 lbs. The engine slipped slightly at starting, the weather being wet and the rails slippery. After passing over the incline of 1 in 85.55, the engine was soon pulled up by the load on a gradient of 1 in 100, the end part of the train being still on the steeper incline, and the whole train on a reserved curve. Thirty seven wagons were then detached, and the train then backed until it was altogether on an incline of 1 in 85.65. The total weight, inclusive of engine, was thus reduced to 112 tons 12 cwt. 3 qr., the tare weight of the wagons being 24 tons 17 cwt. 2 qr., and slates and passengers 76 tons 10 cwt. The engine attempted to start with this load, with steam at 147 lbs., but was unable to do so. The regulator at this office was full open, and the wheels did not slip, proving there was no want of adhesion, for the engines having been more than once backed could not have been stuck upon their centres. Nine more wagons were then detached, reducing the total number to 31, and the total gross load to 90 tons 3 cwt. 3 qr. With this load, the "Welsh Pony" started with steam at 150 lbs., slipping slightly. The maximum pressure was that just stated, and the minimum 125 lbs., to which the steam fell immediately after stoking, whilst the pressure at stopping was 138 lbs. The engine slipped several times during this experiment, and was stopped by signal after having gone 25 chains up the gradient of 1 in 90.51.

The "Little Wonder" was then again brought out, and started from Portmadoc with the same 77 loaded wagons and passengers, the gross weight of the train being 213 tons, 3 cwt. 3 qr., the difference being due to the weight of the engines, for whereas the "Little Wonder," in working order, weighs 19½ tons, the "Welsh Pony" weighs only 10 tons. The pressure at starting was 150 lbs., which was the maximum pressure obtained. The minimum pressure during this experiment was 135 lbs., which was also the pressure at stopping. The fire was stoked once only, and the train was stopped by signal at the same place where the "Welsh Pony" was stopped in the immediately preceding experiment when drawing 31 wagons only, thus proving conclusively the superior power of the Fairlie over the other engine; the weights which each succeeded in drawing up the same incline being respectively, as already stated, 213 tons, 3 cwt., 3 qr., and 90 tons, 3 cwt., 3 qr., inclusive of engines.

Subsequently, the "Little Wonder" started from Portmadoc with a gross load of 114 tons 14 cwt., and with a steam pressure of 160 lbs., she ran for a distance of 13½ miles, stopping at four stations on the way up. The maximum pressure attained at any time was 170 lbs., the minimum 136 lbs., and the pressure at finally stopping was 140 lbs. The length of the train was 1,245 ft. The steepest gradient is one about 2½ miles in length of 1 in 79.82, following upon an incline nearly two miles in length of 1 in 82.71. The sharpest curves are 1½ chains radius, in lengths from 80 to 200 ft. The total time occupied in performing the journey was 1 hour 7½ minutes, and exclusive of stoppages, 1 hour 1 minute.

The trials on the Festiniog wound up with another experiment with the "Welsh Pony," and was undertaken, at the request of some of the gentlemen present, in order to see whether, when starting on the level with a train of 40 wagons, the "Welsh Pony" could take the train up the incline which she previously stuck at. For some reason, however, only 38 trucks were attached, the whole train weighing exclusive of the engine, 100 tons 5 cwt. 3 qr. She started from Portmadoc with steam at 140 lbs., which rose on the embankment to 145 lbs., which was the maximum attained. The injector was turned on when the steam was at 125 lbs., and the pressure then fell to the minimum of 120 lbs. At this moment the train was pulled up by the load whilst on a gradient of 1 in 90.51.

After some experiments with the "Progress" on the Mid Wales Railway, several of the party left, and the remainder proceeded to Swansea, leaving that place on Monday morning for Burry Port, in order to test a new Fairlie engine, the "Mountaineer," upon the Burry Port & Gwendreath Valley Railway. This is a mineral line, constructed upon the bed of an old canal, and the curves had consequently to be made to suit the existing bridges. It consists of a continuous succession of sharp curves and steep gradients, the sharpest curve having a radius of 6 chains. The steepest gradient is 1 in 45, with the exception of a short piece, 130 yards in length at Burry Port, which is 1 in 30, and the easiest 1 in 309. The line is of standard gauge, laid on transverse sleepers, with flange rails, weighing about 42 lbs., to the yard, and finished at the joints in the usual manner.

The "Mountaineer" is a double bogie, with four cylinders, 10 in. in diameter, and with an 18 in. stroke. The bogie wheels are coupled, 3 ft. 6 in. in diameter. The wheel base of each bogie is 5 feet, and the total wheel base of the engine 21 ft. Weight of engine, 25 tons. The fuel employed is a bituminous house coal from the Broad Oak Colliery. On the first experiment the engine started with steam at 160 lbs at the top of the steep incline, with a train consisting of 15 loaded wagons and one brake van, weighing altogether 130 tons 1 cwt., exclusive of the engine. The engine drew this train easily up the inclines, but continued to lose steam very fast. The fire on starting was black and overcharged, notwithstanding which it was stoked nearly continuously during the experiment, the fireman having been but recently engaged, and being consequently quite new to his work. The result was that the furnace became still further overcharged, and steam consequently was not properly maintained. In spite of these drawbacks, the load was taken as far as 6½ miles from the starting point, when, steam having fallen to 80 lbs, the engine was stopped in order to blow up a higher pressure.

The journey was resumed with steam at 157 lbs and ended with steam at 80 lbs. The distance run was 5½ miles, making a total distance of 11½ miles; the whole line, with the exception of a few short pieces, being a continuous succession of reverse curves of small radii. The furnaces being in the same bad condition as before, it was determined to run the train back and try the experiment over again, but on arriving at Burry Port it was found that two of the fire bars had been broken, and had dropped out. The bars were quickly replaced, but as it was necessary to rake out the fire in order to perform this operation, it was found that time would not admit of repeating the experiment.

Steam having been again got up in the "Mountaineer" a further trial, with the same train was made of her haulage power up the incline of 1 in 30. The engine drew this train to the top of the incline when the pressure at stopping was 143 lbs. It was then resolved to ascertain whether the engine could haul the same load up the incline when starting at its foot, being thus deprived of the required momentum as in the previous experiments. A start was therefore effected whilst she was on the crossings, with steam at 100 lbs, but after proceeding half way up, and although sand was freely used, she slipped and was pulled up by the load.—*Engineering*, June 24.

Aspinwall and the Panama Railroad.

The following is from a letter written from Aspinwall to the New York *Express* by a gentleman traveling from San Francisco to New York:

Once on a time, Navy Bay, alias Colon, alias Aspinwall, held out high, exciting, gratifying prospects, destined to be the key that should unlock the barriers between the Eastern and the Western world. The best stock upon the face of this habitable globe was thought to be Panama Railway shares. So profitable was the road, owing to extortive rates demanded for freight and passenger transportation, that the directory fell into a state of fatal security. The freight tariffs of this road so nearly amounted to prohibition of commerce across the Isthmus as to hasten the completion of the Grand Pacific Railway, in the North, while English and French commerce, below the Equator, seeks an outlet through steam by way of the Straits of Magellan; and yet the spacious Panama Railway Directors adhere to the delusion of dear freights and few of them.

Meantime business in Aspinwall (Colon), and indeed the town itself, like Goldsmith's "Deserted Village," is going, if not quite gone yet, to the grand repository of lost things. The town site was bought by the steamship company directors, and twelve or fifteen years ago an important city then in embryo loomed up in the not distant future. It certainly would seem from the appearance of trade and commerce at present, as compared with the past, down this way, that enlightened managers of important companies do not always keep step with the march of events. They have managed for the day and its evils, but overlooked the future. Yet I may be mistaken, and the directory may be far more expansive and longsighted than your correspondent. It may be highly politic to charge \$25 for a ride of 47 miles on the Panama Railroad; also a charge of 5 cents per pound for freight, but I cannot see it. It seems to me now, stopping in Aspinwall, Colon, or Navy Bay, whichever the public please to call it, that more, far more, trains should move over the road. A single car with half a dozen white faces inside at \$25 fares cannot remunerate the company. Coal for steamers on the Pacific passes over this route; those same ships ought to send back freight, coal being simply a means for facilitating commerce and not an end. If there is not freight and passengers to go by way of Panama, steamships will not for all time require coal across the Isthmus. My own opinion is that the sooner the Isthmus road overtakes the spirit of this fast age, and actually learns that if it has gone fast asleep the outside world lives and moves, the better for stockholders.

Ladies in Sleeping Cars.

We published last week the complaints of a lady concerning the lack of privacy of sleeping cars. On this subject the Chicago *Evening Post* comments, copying this paragraph:

"Men will stalk up and down the cars in a negligent habit, but women will not. They join the curtains together, undo a hook and eye, unfasten a lace, take out a hair-pin, and after they are in bed, draw off their garters. Further they dare not venture, for if stone walls have ears, tapestry has eyes."

This shyness on the part of female travelers is doubtless very natural and excusable; and yet, if they would abate a little of it, they would enjoy their travels vastly better. Women journeying alone and unprotected must

indeed feel much annoyance on retiring among so many "great big men," and indeed it is a very bad way to travel, being unpleasant at the best. But wives or daughters, traveling with their natural protectors, need feel no such coyness. [N. B. If you don't happen to have a husband in your possession, they can be obtained almost anywhere. It is better to be provided before setting out on a journey.] Our advice to all ladies traveling by sleeping car would be: Get a whole section in a good car; stick an extra pin or two into the heavy curtains. Nobody will then peer through, or in any way invade your privacy. Undo not only one lace of your corsets, but all of them, your traveling dress being first removed and hung comfortably upon the hook above; don, as quickly as possible, one of those neat little sacques or jackets which you always have rolled up in a corner of a satchel; let down your hair, as mentioned; and *don't* go to bed with your boots on, as the writer above quoted directs. In this wardrobe and a pair of slippers, you may "stalk up and down the cars" with perfect innocence and impunity, unless, indeed, you be the veriest prude in Christendom. Of course, nobody expects a lady will sleep, or even do her toilet, in full dress; and no fellow-passenger will respect her any the less for taking railway life comfortably and philosophically. The two essentials of a comfortable night on the cars are, exclusion of dust and cinders, and an opportunity to stretch one's limbs and remove as much as possible the constraint and contact of the day's clothing. In fact, nine-tenths of what we call *luxury* on board these sleeping-cars, or "palace-cars," is only the necessary provision for *comfort*, in these and other particulars. Of the cost of a Pullman car, probably not one thousand out of the twenty thousand dollars could be abated by simply making it plainer, without detracting from its comfort and convenience; and the cost of hauling—an important item—is as expensive for a plain as for an elegant car. In our opinion, Pullman has done his part toward making the itinerant public as happy as they may be, on wheels; it remains for them to do *their* part.

The Canada Southern Railway.

Not one railway in Canada has been a success to those finding the capital, and the greatest of all Canadian lines—the Grand Trunk—is the worst to its shareholders, for they have never yet had a dividend, and even the fourth preference holders in that company are in the same predicament although their capital amounts to upwards of £5,000,000 sterling and precedes the ordinary stock of the Grand Trunk in the order of claim upon profits; and the third and second preferences had no dividend—of course we mean *cash* dividend—last year, nay even the first preference had but a half of their fixed rate. Such is the Grand Trunk Railway of Canada! The Great Western, the other great railway of Canada, has done much better than Grand Trunk, yet after many years of working the Great Western of Canada earns an insufficient rate of dividend, or at all events a rate that leaves the shares of that company at a discount. Nay, it has been said the climate of Canada is so severe that a railway in it cannot pay. We always laughed at this, and still do, but we admit that the climate is severe and renders railway working difficult and expensive.

With such experience of railways in Canada we are certainly more disposed to think with the wife of Mr. W. A. Thompson, the head of the Canada Southern Railway than with Mr. Thompson himself, when she said to him (as related by Mr. Thompson at the late St. Thomas' meeting)—"Thompson, you will never build that Southern road." However, Mr. Thompson thinks differently. He is now moving with a view to its accomplishment, and some Canadian papers already congratulate him upon having attained success. "Success at Last" is the heading of a leader in the *Canadian Home Journal*, published in St. Thomas, of the 3d inst., singing the praises of the new project, and founding its claim to success upon the fact that a meeting at St. Thomas has voted a recommendation for the municipalities interested in the construction of the line to grant a bonus aid of a million dollars.

"We are to have the Southern Railroad. Of this there is no longer a doubt. Better, it is to be a railroad far superior to anything ever expected. We calculated upon an ordinary line that would cost from five to seven millions. We are to get one that is to cost fifteen millions! One that is to be a first-class road from the beginning. It is to traverse the table land which forms the heart of the Lake Shore counties from Buffalo to this town. From this place it will send one arm to Detroit to receive the travel from San Francisco over the Union Pacific, the Chicago & Rock Island, and the Michigan Southern railroads. It will send another branch to St. Clair to invite over its short route and easy grades the immense traffic of the Michigan Peninsula, and the travel which will come through it from British Columbia over the projected Northern Pacific. Such are the magnificent connections formed for the Canadian Southern in the west. When it gets to Buffalo has its choice of three routes to the Atlantic coast. For the character of the structure we have the word of Milton Courtwright, as the representative of the American capitalists who have undertaken to build and equip the road. The piers and abutments of the bridges are to be of stone or iron, the superstructure of iron, and the rails of steel. We have learned further from the Hon. Isaac Buchanan, who has been lending his assistance to these negotiations, that the intention is to lay a double track. One of them is to be used exclusively for passengers, who will be carried on their journey at the rate of 50 miles an hour. The other will be the freight track."

Thus writes the Canadian paper quoted, but has to add a little condition:

"On condition that the people themselves will contribute one million dollars, foreign capitalists will bring into the country fourteen millions, and will build our road for us far better in every respect than we ever anticipated to see."

Mr. Thompson, however, in his speech at the St.

Thomas meeting, made light of the condition, feeling satisfied, apparently, that it would be readily fulfilled, \$2,000,000 of the stock was then subscribed on condition of the municipal aid being granted:

"The stock is subscribed (said Mr. Thompson) on one condition. With that condition I do not hesitate to expect a ready compliance. The condition is, that the people shall give such material aid to the scheme as will identify their interest with it, and shall be at the same time substantial evidence of their moral support and good-will in time to come. I have given them that assurance. The other gentlemen on the provincial board of directors have confirmed my assurances yesterday to Mr. Courtwright before he subscribed the stock. It remains for the municipalities to verify our promises of good-will and cordial assistance by acting promptly in the preliminary business that is before them. If they will pass the necessary by-laws within the next forty days, I will pledge myself and my associates to build and equip the road from Buffalo to St. Thomas, and its two branches from this to Detroit and St. Clair rivers within eighteen months."

Who subscribed the \$2,000,000 of the stock is thus related by the *Canadian Home Journal*:

"The stock books were opened. Two millions of the stock was subscribed by Milton Courtwright, Esq., of Erie, Penn., a director of the Lake Shore Railroad, and also of the Chicago & Rock Island Railroad, in both of which immense lines he is largely interested as a stockholder. The stock was subscribed on behalf of himself and other large capitalists interested, like himself, in other lines of railroad in the United States to whose interest this road will largely contribute, and upon receiving assurances from Mr. Thompson and the other directors present that the inhabitants of the counties through which the road is to be built are so anxious for it, that they would themselves contribute at least one million of dollars of the amount necessary to its construction. Upon receiving this assurance, and relying upon the good faith of the ratepayers in the matter, Mr. Courtwright produced powers of attorney from Messrs. Scott, Tracy, Dillon, Drew and Ross, and the stock was subscribed as follows:

Milton Courtwright, Erie, Penn.	\$500,000
John L. Tracy, Chicago.	250,000
Sidney Dillon, New York.	375,000
Daniel Drew, New York	250,000
John Ross, New York.	125,000
W. L. Scott, Erie, Penn.	250,000
W. A. Thompson, Queenstown, Ont.	250,000

Total (Two millions). \$2,000,000

Ten per cent. of the amount, or \$200,000 was then counted out in gold scrip in presence of the provisional directors, and received by the cashier of the Merchants' Bank, in London, who was present for the purpose, and who granted a receipt by which the amount was deposited to the credit of the Canada Southern Railway Company and of the treasurer of the province of Ontario—one-half in the merchants' Bank, and one-half in the Ontario Bank, Toronto, there to remain, and not to be withdrawn except for the purposes of paying for work of construction *bona fide* performed on the road; or in the event of the dissolution of the company taking place."

This new great Canadian line is to be 280 miles, and we hope, with Mr. Thompson, that those interested in it will "all get rich by it," but we are not quite prepared to endorse his succeeding statement—"I know you will." We are rather disposed to take the cautious views of another speaker at the St. Thomas' meeting, regarding the paying powers of Canadian railways, who reminded his Haldimand friends that "they had taken stock in the Buffalo & Lake Huron Railroad." Matters went well at first, and when the road was built up as far as Brantford they had a free ride upon it, and a big day and demonstration in the town. Soon after their sorrows began."

The new line, if made, or when made, will compete against both the Great Western of Canada and the Grand Trunk; but this seems to be a feather in its cap, or circumstance Mr. Thompson, in his enlarged views, fairly and fully calculated on. That gentleman philosophically observed at the St. Thomas' meeting:

"Now a word as to the antagonisms to the Canada Southern that developed themselves in the last few years. I have not a word to say against them. It was natural for large railway monopolists to defend their interests from the prospect of a road that might too successfully compete with them for the traffic they now exclusively control. It was to be expected that both the Grand Trunk and the Great Western would oppose us as they did; and, perhaps, when we are established as a road through Canada we also may be found fighting other interests that may rise up to threaten our existence. Self-preservation is the first law of nature. I have not a word of complaint against those who could not see as I saw, and who felt it their duty to pursue a different course of action. I do not wonder they had no confidence in me. My own wife has no confidence in me sometimes on this subject. Often within the last three years has she said; 'Thompson, you will never build that Southern road.'

The Railroads Resume Specie Payments.

All the railroad companies whose offices are in this city yesterday, July 1, paid the half year's interest, then maturing, on all of their debts created before the passage of the Legal-tender act, in 1862, in coin or its equivalent. The Pennsylvania Railroad Company led off courageously, displaying the coin, we are informed, in large abundance, and paying out not only the interest on its first mortgage loan of \$4,972,000, without rebate of the five per cent. Government tax, but gave notice also that the second mortgage and Philadelphia & Erie Railroad coupons, maturing on the 1st of April last, will be paid in coin on the 25th instant. The amount of the Pennsylvania Railroad Company's second mortgage 6s is \$4,886,840, and of the Philadelphia & Erie first mortgage 6s \$1,000,000. The interest payment on these three several items of principal, at 3 per cent., amount

to about \$325,000, the premium on which will cost some \$40,000 at the present rate of premium. Following this lead of the Pennsylvania Railroad Company came the Philadelphia & Reading Railroad Company, which paid interest in coin, or its equivalent, on its bonds of 1880 and 1886, and the North Pennsylvania on its \$2,275,000 of first mortgage bonds. All the large companies are disposed to respect the law as pronounced by the Supreme Court without further postponement or evasion. Two or three of the smaller companies owing on bonds made before the passage of the Legal-tender act tendered currency in payment of the interest due, but at the same time announced the intention of the companies to follow, without delay, the action of the larger companies, which was not generally known until too late to make the necessary arrangements for coin yesterday. The Reading Company, and, we believe, the North Pennsylvania, also paid the full interest without deducting the 5 per cent. Government tax. We are not of opinion that we shall ever hear anything more of the threatened attempt to procure a reversal of the widely and warmly discussed Legal tender decision. All debts contracted before February, 1862, are payable in coin, and will be so paid by companies and by individuals. The officers of the companies who have, in these costly coin payments, gracefully acknowledged the obligation and binding force of law, are justly entitled to credit in proportion as the amounts paid were large and the pecuniary inducements to hold out correspondingly tempting. While the action of these officers may be commended for this evidence of integrity and returning loyalty, we believe in this, as in all like cases, that honesty will be found the best policy, and that more will be realized in the shape of improved company credit than the gold cost in establishing a reputation for fair dealing.—*Philadelphia Ledger*.

The Great Western's New Line.

We learn by cable that at a special meeting of the stockholders of the Great Western Railway of Canada, held in London (England) yesterday, the directors of the company were authorized to subscribe for all the stock in an Air Line Railway from Glencoe, Canada, to Fort Erie, opposite the city of Buffalo, and to proceed immediately with the construction of the road. The contracts are to be let without delay.

This is very important news for our citizens. The proposed branch of the Great Western Railway will give this city a short route to Detroit, on an easy grade, and will secure the Michigan Central and Great Western Railways (now practically under one management) the advantage of a direct connection with the two great routes to New York, *via* this city, instead of a single connection with the New York Central at Suspension Bridge to which the line has hitherto been restricted.

The project of constructing this "Loop-line," as it is styled, has been before the managers of the Great Western for some years, and we believe they have never doubted the advantage that would accrue to that company, and to its closest ally, the Michigan Central, from its consummation; but fear of the New York Central, in whose power the Great Western people have felt themselves, owing to the fact that their line had no other outlet to the East and no other direct feeder for West-bound traffic, has tied their hands as it were, and they have been obliged to wait the issue of events with what patience they could. The recent absorption of the Lake Shore & Michigan Southern Railway into the Vanderbilt interest, however, left the Great Western and Michigan Central managers no choice but to break their feuds and seek to secure a position of comparative independence of their New York Central connection. It was useless to expect anything like a position of neutrality, on the part of Mr. Vanderbilt, with regard to his Western connections, now that his interest had been directly identified with one line only (the Lake Shore & Michigan Southern), and it behooved the Great Western & Michigan Central line, therefore, to get out of the uncomfortable position of dependence as quickly as possible. This is the meaning of the news that the long-desired "loop-line" to Buffalo is to be constructed immediately.

In this prompt adoption of a vigorous policy, we think, may be discovered the hand of Mr. Joy, President of the Michigan Central, in whom, by a recent arrangement, is vested a practical control of the policy of the Great Western Railway. The same gentleman is at the head of the wealthy Chicago, Burlington & Quincy Railroad Company, the Hannibal & St. Joseph, the Burlington & Missouri River, and several other less important western lines. He controls more miles of railway, we believe, than any other man in this country, and is about the last person who could rest in an unfavorable position for competition, dependent upon the caprice of another. We fancy that if Mr. Vanderbilt lives a few years longer he will find in Mr. Joy a more powerful rival than any of the railway magnates with whom he has hitherto come into collision.

The consummation of the new project, in the meantime, cannot but be of immense advantage to this city. The prospect is not relished, of course, by the Hamilton (Canada) people, who will find their city cut off by the "loop line" from the main traffic of the Great Western Railway, which will, under the new arrangement, pass through Buffalo. This feeling has been clearly manifested by our neighbors, but, as was pointed out by a correspondent of ours, in a recent issue, it is quite idle for them to contend against the inevitable. What must be will be. The policy of a grand chain of railways cannot be regulated to suit the interests of this or that city—*Buffalo Commercial Advertiser*.

—Edward Wilder, Land Commissioner of the Hannibal & St. Joseph Railroad Company, reports the sales of the company's land in North Missouri during the month of June, 1869, as follows: 2,408 acres and ten town lots to 50 purchasers, at an average price of \$12.25 per acre, making a total of \$29,506.14, or about \$1,135 per day.

Judge Barnard's Injunction of the Lake Shore & Michigan Southern.

The Buffalo *Commercial Advertiser*, which is unusually well informed in railroad matters and appears to be not especially friendly to the Vanderbilt interests, has the following comments on the recent injunction of Judge Barnard, which directs the Lake Shore Company to make no discriminations against the Erie Railway in transacting its business:

Under the strong presentation of their case by the plaintiffs, we suppose that Judge Barnard could do no less than enjoin the Lake Shore & Michigan Southern Railway from using any influence or solicitation to send passengers or freight over the New York Central & Hudson River Railroad in preference to the Erie, and from giving the patrons of one road any favors or advantage which it does not extend to the other. This, we learn by telegraph, is the limit of the injunction issued by him yesterday. The Judge gave the parties time, until September 19th, to show why the remaining clause of the injunction, asked for by the Erie, should or should not be granted, and appointed Wilford Bartlett as referee to take testimony in the meantime.

We presume, as we have said, that Judge Barnard could do no less than grant this modified injunction; but we are satisfied that he has gone quite as far as he was in any way justified in going in behalf of the Erie interest. The injunction granted effects nothing. It will not interfere with the convenience of the public, as a compliance with all the demands of the plaintiffs would have done, by compelling breaks of gauge and transfers of passengers and freight on the Lake Shore & Michigan Southern line. According to the statements presented in behalf of the defendants, it requires nothing more of the latter company than its managers have always practised, i. e.—a strict impartiality as between their Erie and New York Central connections. They have therefore only to pursue the even tenor of their way for the present—though, possibly, it may be expedient to exercise more care in covering their preference of the Central line (which Mr. Vanderbilt will doubtless secure in some way) than they have hitherto exhibited. As the almanacs do not say, you may look for a change in railway policy about these days, on that line—but you won't see much of it! There is no telling what may happen in the mean time. Two months may see strange changes occurring in the railway world. A sudden but not unexpected event might change the whole aspect of affairs with the great rival houses of Vanderbilt and Erie.

One of the arrangements existing between the Erie managers and the Lake Shore line, prior to the accession of Vanderbilt to the control of the latter, gave the former line a right to run into the Union Depot at Cleveland, on condition that Messrs. Gould and Fisk should abandon their old project of building a through line to Chicago. It is stated that this privilege has been denied the Erie, by the new Vanderbilt management of the Lake Shore, and that Messrs. Gould, Fisk & Co. have, in consequence, made definite arrangements for the immediate extension of the Erie and Atlantic & Great Western lines to Chicago. From Cleveland the new line will wind along the lake shore to Sandusky and Toledo, from which latter point it will strike out for Chicago by an air line. It is asserted that the project meets with great favor throughout the West, and that the leading capitalists of Cleveland and Chicago, and other prominent men interested in the sections that are to be benefited by the opening of the new line, have agreed to subscribe all the capital required, provided the line be commenced immediately. The latter portion of the statement is open to doubt. Sufficient time has not elapsed, since the fight began, to obtain such agreements, but our railway friends do not usually stick at trifles when they want to take the public by the ear.

On Rolling Rails.

At a recent meeting of the British Iron and Steel Institute, the discussion of Mr. Menelaus' paper "On Improved Machinery for Rolling Rails" elicited a vast amount of information. It seems that the object sought to be achieved in rail-rolling is to avoid stopping the rolls after each passage of the rail under treatment. It is not difficult to comprehend that with machinery running at only forty revolutions per minute the loss of time and power, resulting from the reversal every time that fifteen feet of iron has passed through it, is considerable; and if nothing else were learned at the meeting of the Iron and Steel Institute, all must have been convinced that the opinion which had still been entertained by some, that there was no loss of economy from reversing, was erroneous. Perhaps the most remarkable statement made in this connection was that of Mr. C. W. Siemens, F. R. S., who actually suggested that an advantage was obtained by stopping the engine as well as the rolls. For very heavy work, such a system may indeed be admissible under some exceptional circumstances, but, as it was objected, if it be unadvisable to stop the rolls, how much more so it must be to stop the whole of the machinery, even apart from the fact that by adopting Mr. Siemens' suggestion it is practically impossible to work two sets of rolls from one engine, as is frequently done at present. The loss of accumulated power at each reversal becomes of itself an important item in connection with the cost of rail-rolling, and hence the efforts of practical rail-makers to keep their rolls continually going in one direction.

Assuming, then, that the desirability of avoiding the reversal of the rolls is admitted, the question naturally arises, how can that object be most easily and economically accomplished? The pile of iron, it must be remembered, is in a heated state, and has to be passed a certain number of times through the rolls whilst still soft enough to take the impression of them. The use of hot rolls to prevent the abstraction of heat will scarcely be suggested, seeing that it is not required to effect the union of the rolls and the rails, although some of the suggestions

appear but little more worthy of adoption. In devising a plan of operation there are necessarily many circumstances to be considered; yet, if simplicity can be combined with efficiency, the result should be a machine that would be generally adopted. The system of roll before roll has been suggested, and where large quantities of metal have to be rolled without change of section, may possess some advantage, but it seems to necessitate an enormously large plant for the performance of a given quantity of work; it has another objection, to which reference will be made presently. The mode proposed by Mr. Menelaus for overcoming the difficulty consists in placing two pairs of rolls, one a little behind and higher than the other. In using this arrangement, the rail is passed backward and forward, but the rolls are never stopped. The rail is passed through the bottom pair, then lifted and returned through the other. It will be seen that Mr. Menelaus has the advantage of two distinct pairs of rolls, very conveniently placed with regard to each other. The lifting of the end of the rail is no doubt an inconvenience, but it is a very small one, so small indeed as scarcely to be worthy of consideration. In another arrangement proposed by Mr. Brown this lifting is avoided, but it seems that the remedy is almost worse than the disease. He has two pairs of rolls, one behind the other at the same level, each pair having blanks and working grooves alternately—the blanks in one pair being opposite the working grooves of the other. The rail to be rolled is passed through a pair of blanks in the first pair, and rolled in working grooves in the back pair, and is then returned through blanks in the back pair, and rolled in the front pair. The rail, instead of being lifted after each passage, is moved horizontally, and some of the practical men present seemed to consider the removal of the hot rail horizontally more objectionable, because more liable to twist it out of shape, than the lifting of it.

But that which promises to militate most against the introduction of Mr. Brown's arrangement is its extreme costliness. The stock of rolls has to be doubled for a given number of working grooves, and one-half of the roll surfaces become mere rollers, which do no useful work whatever. And as to changing two pairs of rolls instead of one each time a fresh section has to be rolled, there is the same objection in the roll before roll system in that of Mr. Menelaus and in Mr. Brown's; hence the question raised by some, what is the advantage of reversing? Yet it was admitted the advantages of avoiding the reversal of the rolls far exceed any supposed disadvantage, and that it was merely a question as to the best means of doing it. Roll before roll, the Dowlaus rolls, and Mr. Brown's rolls, all having objectionable features, and the reversal of the rolls, (no matter what means of reversing may be adopted) being more objectional than either, the Ramsbottom rolls naturally claim attention. Ramsbottom has all the advantages claimed for the Dowlaus rolls, and uses only a pair and a half instead of two pairs of rolls, and thus secures apparently the utmost attainable economy. The three rolls used by Mr. Ramsbottom run in one pair of standards, and being all geared together, the middle roll runs in the opposite direction to those above and below it; the rail can consequently be passed through between the bottom and middle rolls, and returned between the middle and top rolls, the whole of the machinery running in the same direction all the time. As in the other system of two and fro rolling without reversing the rolls, the end of the rail has to be lifted after each rolling, but in practice this really seems to be a very small inconvenience, so that, upon the whole, Mr. Menelaus' observation that if he had another mill to put up at Dowlaus, he did not know whether he would not adopt Mr. Ramsbottom's plan even, instead of his own, is one which is worthy of the utmost consideration of all who are practically engaged in the rolling of rails.—*London Mining Journal*.

Cincinnati and its Railroad Connections.

The Cincinnati *Railroad Record*, in explaining the combination of railroad companies for obtaining routes to and through Cincinnati, expresses the opinion that the attention of the powerful Eastern companies is hereafter likely to be drawn towards the Ohio valley and the Southwest, rather than to the Lake basin and the Northwest. We give below the larger part of its article:

"Was this vast region to be overlooked in the calculation of New York? For half a century, it was, practically, because as we have said, New York was engaged in building up her Western territory, and in aiding the commerce and towns of the Lakes. But there has come a time when two great facts loom up to the eyes of New York traders and speculators. It is evident that the Lake basin no longer increases the trade of New York at the same rate it did. In the next place, it is equally evident that the Ohio valley and the Mississippi valley are beginning a new career of improvement. The slave question is over. All agitation, except that of industry, is ended. Industry comes up as the great idea of society. Towns are being rapidly built; mines are being opened. Cincinnati already feels the force of the great industrial wave. Is New York to forget and forego all this? Certainly not, and her capitalists are now just getting their eyes open. The consequence is, that instead of forgetting, they now seem to be rushing towards Cincinnati in an impetuous competition. Let us now notice a little what is and has been going on:

"1st. The first attempt to reach Cincinnati on a direct line from the Atlantic was that of Baltimore; and to some extent Baltimore still has the advantage in having the shortest line between the Ohio and tide-water.

"2d. But, Virginia has a little the advantage in having the shortest line, not to tide water, but to the Atlantic Ocean. Hence, she early began the Kanawha Canal by the head of James River, which is still urged, and which ought to be made. Then the Virginia Central was undertaken with the same view. That work, as well as

the "Covington & Ohio" has been reorganized under the name of the Chesapeake & Ohio; and is now being pushed forward with great vigor. It will be completed to the Ohio River, quite as soon as the new eastern enterprises can be completed. It is absolutely necessary to itself and to Cincinnati, that the Chesapeake & Ohio should be completed from the Ohio River to Cincinnati, and connect with the western roads, and when it does, no road will surpass it in advantages.

3d. The next (and so far the most successful) of the eastern roads, in attempting a connection with Cincinnati and the Ohio valley, was the Pennsylvania Road. For a long time, the able and energetic managers of the Pennsylvania Central were occupied in perfecting their own road, and in buying up and basing their Pennsylvania connections. This done, they continued their road through Ohio to Chicago, which made a great through route to the Northwest. In the mean time, what is called the Pittsburgh & Columbus line, was built and operated separately, but in connection with the Pennsylvania road. Finally, the Pennsylvania Company turned its eyes to the Ohio valley. It leased or bought the Pittsburgh road, has recently leased the Little Miami, and is building (or those in its interest are) a bridge over the Ohio at Cincinnati. It has bought the Wilmington & Zanesville road, and is now making the cut-off, from the Pittsburgh road at Dresden to Zanesville. This will be but a short distance, and will probably make the distance from Pittsburgh to Cincinnati by Zanesville, as near as by Columbus. Thus the Pennsylvania Company will have a great double route through Ohio to Cincinnati, and over the bridge, to connect by the shortest line with Memphis. It is thus evident, that the Pennsylvania Company has taken the shortest and best methods to connect themselves with the whole Ohio valley and the Southwest.

4th. In the meanwhile, the Atlantic & Great Western was built by an English company on a grand scale—a great double track road, to connect with the Erie road to New York on one side, and with St. Louis through Cincinnati on the other. But there was a link missing from Dayton to Cincinnati, and the question was, whether a new road should be made, or some arrangement made with the Cincinnati, Hamilton & Dayton line. The latter was preferred, and a third rail laid, and the right of way obtained. Thus there was at once raised up a great competing line with the Pennsylvania, and an absolute bar to the New York Central, in regard to competition for the trade of the Ohio valley and the Southwest. And here arose a question in the public mind, whether the New York Central would quietly accept being cut off from the Ohio valley, or would attempt to compete for it? Apparently, the New York Central was quiescent, but we never believed it could be so. For it would be simply to concede that the New York Central was not one of the great trunk lines of the United States. At length, however, the public are startled with the result.

5th. It is announced, that the New York Central, the Lake Shore, the Sandusky, and the Cincinnati & Indianapolis, and the Cleveland & Columbus roads have combined to make the "Short Line" from Dayton to Cincinnati! Thus, after so much opposition, so much rivalry and jeering, the "Short Line" is to be made, and there is to be a new and great link into Cincinnati. We have maintained both the policy, and certainty of this road from the beginning, and can only hope that its proprietors and managers will really make it a short and straight line into the center of Cincinnati.

Railroad Expenses and Receipts in 1859 and 1869.

In the report of the Connecticut River Railroad Company for the year ending November 30, 1869, there are tables which show the expenses and receipts of the road in 1859 and 1869, with the following comments:

From this table it will be seen that the average cost, per mile by the trains, of operating the road in 1859, was only seventy-five cents, and that the cost of the same in 1869 was one dollar and twenty-eight cents, an advance of seventy per cent., while in the same period the average net income advanced only from seventy-eight to eighty-three cents (being an increase of only seven per cent.), and the average charge for carrying a passenger or a ton of freight one mile was substantially the same at the two periods, or, taking the currency into account, the rates may properly be considered as reduced more than twenty per cent. In view of the facts thus presented, there would seem to be little cause for dissatisfaction with our tariffs.

The same table exhibits the further fact, that between the years 1859 and 1869 the gross income per mile in length of road advanced from \$3,621.23 to \$12,249, being an increase of nearly three hundred and fifty per cent. Herein lies the secret of our ability to practically reduce the rate of passenger and freight transportation, notwithstanding the enormous increase in the expense of doing the business. Thus does our experience confirm the statement so often made by railroad managers, that increase of business tends to a reduction of rates, while the decrease of business, consequent upon the opening of what is termed a rival road, naturally and inevitably results in an advance of rates, for the reason that the two roads have to be operated and maintained out of the income which would otherwise belong to one. If the public could rightly understand the effect upon the cost of transportation of having competing lines of railroad, in localities where the amount of business is fairly within the capacity of one road, there would be less anxiety on the subject.

—It is expected that by the end of this month Constantinople will be in direct communication, via Varna and the Roumanian lines, with the whole railway system of Europe. The line from Ibraila to Bucharest, and that from Galatz to Roman, will both be opened next month. As the line from Lemberg and Carnowitz is finished to Roman, passengers will be enabled to proceed by railway next month, via Varna and Bucharest, direct to any part of Europe.

General Railroad News.

OLD AND NEW ROADS.

New Haven, Middletown & Willimantic.

This road was opened for business from New Haven to Middletown, Conn., 22 miles, on the 7th inst., with a grand excursion. It is intended to complete it to Willimantic, 30 miles further, by the end of the year.

Buffalo & Washington.

Buffalo sometime ago subscribed \$500,000 to this company, available only after a similar amount had been subscribed to the stock. This amount is now subscribed, and the company is now in position to let contracts for the construction of the road. Twelve citizens of Buffalo subscribed \$25,000 each.

Chicago & Illinois Southern.

The Mattoon (Ill.) *Journal* of the 9th says: "Messrs. Reagh and Ingle, surveyors, are this week surveying and locating the line of the Chicago & Illinois Southern Railroad, between our city and Sullivan, and it is proposed to go to "throwing dirt" next week, between Mattoon and Sullivan. Colonel Taylor, Chief Engineer, is expected here next week, when the survey will likely be made south, and work commenced in that direction from our city also."

Peoria & Farmington.

The stockholders of this new company held an election for directors a few days since and George C. Bestor was chosen President; William Kellogg, Treasurer; George L. Bestor, Secretary. Immediate measures are to be taken to survey the route. Farmington is a station on the Ruda & Rushville Branch of the Chicago, Burlington & Quincy Railroad six miles south of Yates City and 23 miles due west of Peoria.

West Wisconsin.

The extension of the track beyond Augusta has been delayed for the want of spikes, but now there is material enough of all kinds at Augusta to complete the line to Eau Claire, and work is resumed.

Hastings & Dakota.

It is now reported that the rumor, pretty generally circulated and believed, that the Milwaukee & St. Paul has purchased the above line is untrue. Some time ago a detailed statement was made of a contract between the two companies by which the Milwaukee & St. Paul was to extend the Hastings & Dakota, and virtually possess it.

Des Moines Valley.

After all, this road is to pass through Des Moines. Last year it was decided to cross the Dubuque & Sioux City line six miles west of that place, and on this route the road was nearly completed. A fierce attack was made upon the company by Fort Dodge, an attempt was made to deprive it of its land grant, and another company was organized to build a railroad from Des Moines along the Des Moines River through Fort Dodge to Mankato, Minn.—a road that would have greatly injured the Des Moines Valley and been itself a poor property. It received a great deal of popular favor, however, and was much talked of, both in Iowa and Minnesota. Now it is announced that the Des Moines Valley road will extend its line into Fort Dodge, in return for depot grounds, \$27,000, and the abandonment of the other railroad scheme. On the 29th trains commenced running through from Keokuk to the Sioux City Junction, (the crossing of the Dubuque & Sioux City road,) a distance of 243 miles from Keokuk.

The Grand Junction *Headlight* says:

"The complications concerning the entrance of the road into Fort Dodge having all been settled, the company will bend every effort to the extension of the line to the McGregor & Sioux City road, reaching that at a point a few miles west of Algona and near the line of Palo Alto and Kossuth counties. The McGregor road is completed to within twenty miles of Algona, and will reach that place by September next. A gap of forty miles remains to be constructed between Mason City and Austin, Minn., which gap will be closed up in thirty days. By the Valley road we will then have an all rail route through to the chief cities and lumber marts of Minnesota. It has an elbow like crook, but the crook makes but little difference in the distance in the main line. In 1871 the Valley road will without doubt reach its northern terminal point—Mankato, when it will become the grandest and best paying line in the State, as it now is one of the best managed and constructed."

Lafayette, Bloomington & Mississippi.

Snell & Taylor, the contractors, expect to have the entire line of railroad graded and bridged, 80 miles, to the Indiana State line by August 15, according to the contract time. The line from the Indiana State line to Lafayette, including the bridge across the Wabash, a distance of thirty-five miles, will be completed in September, and it is intended to have the road in operation between Bloomington and Lafayette, 115 miles, before

the close of the year. The officers have been conferring with leading men of Quincy concerning the proposed extension of the road to that place. One proposition is to build a line from some point on the Jacksonville Division of the Chicago & Alton, either at Delavan or Petersburgh, crossing the Illinois at Havana, or Beardstown, and thence to Quincy, using the Chicago & Alton road as a route to Bloomington. The part of the road in Indiana is known as the

Lafayette, Muncie & Bloomington.

On the western division of this line, between Lafayette and the Illinois line, the contractors, L. A. Dauby & Co., have a large force employed in grading, and the work on the Wabash River bridge is progressing rapidly. The contract for grading and bridging the eastern division from Lafayette to Muncie, 88 miles, has just been let to Snell & Taylor, of Chicago, who propose to put on a large force next fall. The distance from Muncie to Bloomington is 200 miles, and if the road is extended to Quincy it will be 325 miles long. The annual meeting of stockholders of the Indiana company was held on the 4th instant, at which Adams Earl, of Lafayette, Ind., was re-elected President, E. M. Talbot, late Chief Engineer, was chosen Secretary, and Thomas Coleman re-elected Treasurer.

Ottawa, Oswego & Fox River Valley.

It is reported that this company has made arrangements to extend its road from Streator, the present southern terminus, southeastward through Pontiac to Fairbury, a station on the Toledo, Peoria & Warsaw Railway. This extension will be about 35 miles long, and will give an eastern outlet to the Vermillion coal mines.

Burlington & Missouri River.

This road has agreed to carry the mails east from Council Bluffs on the line of the road without charge, until the Post Office Department makes a contract for the service. This it does for the sake of accommodating the people on the line of the road. Trains will be running on the branch from Red Oak Junction to Nebraska City by the 10th.

Southern Minnesota.

Mr. J. M. Nye, Superintendent of Telegraph, says that on the 4th inst. cars run to a point seven miles west of Wells. On the other end of the road the track will in a few days reach Spring Valley, which is about eight miles east of Ramsey. The whole distance from LaCrosse to Wells is about 150 miles.

Laclede & Fort Scott.

The Fort Scott *Monitor* says the survey has been completed and the work of grading is in progress within a few miles of town.

St. Louis & Fort Scott.

The *Mississippi Valley Review* gives the following list of subscriptions which have been made to this road: Vernon County, \$200,000; Cedar County, \$200,000; Polk County, \$250,000; Dallas County, \$150,000; Laclede County, \$100,000; Fort Scott \$75,000; Besides the above, considerable sums have been subscribed by individuals. The road is under contract between Lebanon and Buffalo, and also between Fort Scott and Nevada, on each of the divisions the work of grading is progressing rapidly.

Peoria, Atlanta & Decatur.

The townships of Cerro Gordo and Marion voted on the 7th instant to take \$115,000 stock in the road.

Lake Superior & Mississippi.

Trains are now running to Thompson, at the dalles of the St. Louis River, 128 miles from St. Paul. This will be the point of intersection with the Northern Pacific. It is expected that the line will be finished to Lake Superior about the 15th of August.

Omaha & Southwestern.

The Omaha *Herald* of last week is informed by General Lowe, one of the contractors, that the grading of the first nine miles of their contract will be completed this week. By the terms of the contract they were to complete seven miles within forty days, but they have so pushed the work that they will have nine miles done within thirty days. On the tenth mile there is considerable stone work, which will of necessity consume some time, but it is expected that the whole will be finished within about two weeks.

Atchison, Hilton & Kansas Valley.

This company has been lately organized at Atchison, Kansas, to build a road from Effingham, on the Central Branch of the Union Pacific about eighteen miles west of Atchison, southwest to Manhattan on the Kansas Pacific. Such a road would be about 65 miles long.

Houston Connections.

The Galveston, Texas, *News* has been interviewing the citizens of Houston and finds them wide awake to the advantages of railroad connection and learns that the track of the Texas and New Orleans Road from Houston to West Liberty has been put in order and trains over it daily. A line of coaches connects West Liberty with

the town of the same name east of the Trinity, and the bridge over the river will be placed in order at once. Surveying parties are locating the Great Northern Railroad, contractors are on hand ready to commence grading, and from all visible indications the prospects for early completion of that important work are much brighter than the public have been led to expect. Trains over the Waco Tap Road were to discontinue regular trips after the 1st instant, but would run whenever there was anything to be carried. The road will be put in order by the time the fall trade commences. Capt. Sterrett, Admiral of the Direct Navigation Company's fleet of transports, was expected to leave Cincinnati about the first of July, with a new boat, the Diana, for the Buffalo Bayou trade.

St. Joseph & Denver.

It is expected that the road will be completed to Seneca, Nemaha county, 70 miles west of St. Joseph, by the 1st of August.

Cherry Valley, Sharon & Albany.

This road is now open. It extends from Cherry Valley and Sharon Springs in the northern part of Otsego county, to Cobleskill, about 20 miles, there connecting with the Albany & Susquehanna road.

North Missouri.

This line was completed to Ottumwa, Iowa, on the 8th inst., connecting there with the Burlington & Missouri River and the Des Moines Valley roads. On the 27th the Iowa editors will make an excursion trip over the road to St. Louis.

Tebbe & Noehe.

One thousand laborers are now working on the line between Fort Scott and Sedalia and according to the telegrams the road will be completed from Sedalia to a connection with the Missouri Kansas & Texas within 90 days. Fry & Munger, contractors, advertise for 500 more men and 100 teams. The company demands of the Fort Scott people, on condition that the road shall pass through the city, and it be made the end of a division and the location of the first machine shop southwest of Sedalia, \$150,000 county bonds (already voted) as soon as that amount will complete the grading between Fort Scott and the State line. Also as soon as the cars run into Fort Scott, the city is to donate \$75,000 additional, and furnish right of way and 25 acres of grounds for depots and machine shops, or eight acres in the city and 20 acres outside; or, instead of the grounds to vote \$25,000 in city bonds. Thirty days to be given the city to make choice as to the 25 acres, the 28 acres, or the \$25,000 bonds.

St. Paul & Dubuque.

The Mantorville *Express* says Mr. McNamara and a party of engineers are surveying a route for the contemplated railroad from the State line to St. Paul, by way of Austin and Mantorville, as far as Waterville, they report the route very feasible.

Little Rock Connections.

The Helena *Clarion* says: "The great effort among our railroad men is as to which shall get connection with Little Rock first. Kansas City is building a road down to Fort Smith, or in that neighborhood, which will connect with the Fort Smith & Little Rock road. St. Louis is trying to make connection through the Iron Mountain road to the crossing of the Cairo & Fulton road and thence by that road. Cairo is putting in some pretensions, in the interest of the Illinois Central, through the Cairo & Fulton road. Finally, Memphis is reaching for the same point through the swamps, bogs, mosquitoes, snakes and frogs of the St. Francis swamp. Meanwhile the Midland or Helena & Little Rock are preparing to begin work this fall. The company is soliciting subscriptions in cash, stock or land, upon condition that the lands shall be forfeited if the road is not completed by January 1st, 1876.

Omaha Bridge.

The Omaha *Herald* answers various rumors to the effect that the bridge will not be built in this wise: "Work is being pushed on this bridge just as fast as time and money will permit, and we feel qualified to say that the month of June, 1871, will see it a completed structure. Our information is direct, authentic and explicit, from the most responsible source, that the Union Pacific Company are authorizing all necessary expenditures, even though involving large extra outlays, to secure the completion of the bridge at all hazards in the early spring months, if possible, and by June, 1871, at latest."

Lake Shore, Louisville & Southern.

The above is the title of an incorporation whose certificates were filed with the Secretary of State of Ohio on the 5th inst. It proposes to construct a road which is to commence at Huntsville, in Logan county, a station on the Cincinnati, Sandusky & Cleveland road 18 miles above Bellefontaine, run thence southwest through Champaign, Shelby, Miami, Montgomery and Preble

counties, striking the Indiana State line at or near College Corners, Butler county. Capital stock, \$4,000,000. Shares \$50 each. Corporators, F. A. Soule, D. C. Howard, M. A. De Tough, Stephen Johnson and Alexander G. Conover.

Toledo Railroad Projects.

Some of the new railroads which the town at the west end of Lake Erie proposes to have are as follows:

FROM THE EAST AND SOUTH.

1. The Toledo & Crestline or Lexington.
2. The Toledo & Mansfield.
3. The Toledo & Pomeroy (Atlantic & Lake Erie).
4. The Toledo & Pittsburgh (the Baltimore, Pittsburgh & Chicago—an extension of the Baltimore & Ohio).
5. The Toledo & Belmont (Bellair to Toledo—an extension of the Baltimore & Ohio).
6. The Baltimore & Ohio and Lake Erie & Michigan Southern.

FROM THE NORTH.

7. Holly, Wayne & Monroe.
8. The Toledo, Ypsilanti & Saginaw (being an extension of the Flint & Pere Marquette to Toledo).
9. The Toledo, Ann Arbor & Saginaw.
10. The Lansing & Toledo.
11. The Jonesville, Albion & Lansing.

Union Pacific.

The General Superintendent, C. G. Hammond, has issued the following circular dated July 7:

"To prevent the necessity of replying specially to numerous inquiries regarding danger from Indians on the line of the Union Pacific road, I would state, that I am informed that from the opening of the road to July, 1869, and from that day to the present time, during which I have had charge, no passenger has been molested or any passenger car interfered with in a single instance. That those portions of the road where Indians occasionally cross, and indeed all stations through the Indian country, are well and thoroughly guarded by United States troops, infantry at stations, with cavalry scouting and co-operating therewith, all under command of Maj. Gen. C. C. Augur.

"The Directors and other officers of the road and their families pass over the line without hesitation or fear. I have recently passed days upon and over the whole line, and can say with perfect truth that I felt as free from danger as if traveling in any part of the Union. My own family and lady friends have had the same experience and testify to the same feeling of security. To their testimony might be added hundreds of others.

C. G. HAMMOND.
General Superintendent.

"P. S.—Sensational newspaper items should be read with allowance.

"Indian difficulties occurring in interior districts at great distances from the road, are frequently telegraphed from stations on the line of the Union Pacific Railroad, thereby giving false impressions of insecurity to passengers when no cause for fear exists."

The fare from Omaha to Denver, since the completion of the Denver Pacific Railroad, has been reduced to \$48.75. From Chicago the fare is now, we believe, \$66.75.

Atlantic, Mississippi & Ohio.

This is the name of the company by which the consolidated Norfolk & Petersburg, Southside, and Virginia & Tennessee railroads will be owned. There is also included in the consolidation the projected Virginia & Kentucky railroad, no part of which is completed, but which it is intended to construct from Bristol, on the line between Virginia and Tennessee, westward to Cumberland Gap, a distance of 95 miles. By the act authorizing the consolidation, the company may have a capital stock of \$25,000,000.

Lafayette, Bloomington & Mississippi.

Officers of this company, which has its road under contract between Lafayette, Ind., and Bloomington, Ill., have been in Quincy, proposing to extend their road to that point.

Quincy & Carthage.

The Carthage (Ill.) *Gazette* of the 7th says the work on the Quincy & Carthage Railroad, between that place and Meriden, is still progressing rapidly. A sufficient number of ties are now ready for delivery to tie the road from Carthage to Bear Creek timber. The iron for the whole road has been purchased, and twelve hundred and sixty tons are now on the way from New York. The *Gazette* says that from present appearances the road will be completed before the expiration of the time agreed upon by the contractors when the work was commenced.

Rockford, Rock Island & St. Louis.

The city of Dixon has voted \$50,000, and the town \$50,000 more in aid of the extension of this road from Sterling to Rockford.

Springfield & Northwestern.

Petersburg, Menard county, has subscribed \$45,000 to this proposed road.

Jacksonville, Northwest & Southwest.

Montgomery county, on the 2d inst., voted, by a large majority, \$100,000 in aid of this project.

Decatur & East St. Louis.

The Toledo, Wabash & Western Company has issued \$3,000,000 of additional stock in order, it is said, to provide means to equip the above road. This is nearly \$30,000 per mile, which is certainly a very liberal allowance.

Central of Iowa.

The northern extension of this road was completed from Ackley northwest 15 miles to Hampton, the county seat of Franklin county, last week, and trains are running regularly between that place and Marshalltown. A force of five hundred men is at work between Hampton and Mason City, about 30 miles, and it is expected that the road will be completed to the latter place inside of three months. A large force is also at work on the southern part of the line between Marshalltown and Grinnell. President Gilman in a private letter writes that he has made arrangements with the Milwaukee & St. Paul Railway Company to meet their road at Mason City this fall.

Chicago & Southwestern.

The route of the road has been determined from Fairfield to Centerville, a distance of about 50 miles. Centerville is about 46 miles west and 17 miles south of Fairfield. Appanoose county, of which Centerville is the county seat, makes a subscription of \$100,000.

Winona & St. Peter.

There are now four regular trains each way on this road, two freights, one passenger and one accommodation. The passenger leaves Winona at 11:15 a. m., and arrives at Janesville, 116 miles, at 5:00 p. m. The accommodation leaves Winona at 3:15 p. m., and arrives at Rochester, 50 miles, at 7:45 p. m. Going east, the passenger leaves Janesville at 10:15 a. m., and arrives at Winona at 4:00 p. m.; and the accommodation leaves Rochester at 6:35 a. m., and reaches Winona at 11:15 a. m.

Central Pacific.

Since the 7th of July no Pullman cars have been run over this road, and it is announced that the company will hereafter have none but its own sleeping cars on its lines. This was its policy originally. It purchased a number of Silver Palace cars, and has had Pullman cars only on special trains. As the Central Pacific controls all the railroads in California, its action indicates that the Pullman company will hardly get a lodgement on the Pacific coast. This action is not altogether satisfactory to some, as the following from the San Francisco *Call* indicates:

"Good accommodations unquestionably increase travel, for there is a large population which will not go and come over the Pacific Railroad unless the accommodations be such as to suit them. A considerable proportion of the travel, so far, has been excursionists. Half of these persons could not have been induced to make a trip to California in an ordinary car. So with numbers of our own citizens; they go East because it is almost like staying at home—a mere pleasure excursion. Even with travel from Europe to China, Australia, etc., thousands of persons would be induced to pass through California from hearing of the luxurious Pullman train. Withdraw these cars—even withdraw them from the Central Pacific road—and we believe a great source of revenue will have been lost to the company, and there would certainly be lacking that kind of travel which is likely to bring capital to this State. There is no estimating the benefits which we may ultimately derive from the visit of even a hundred persons representing large capital. Millions of dollars may be invested in California from having visited us and seen the advantages which the State offers. The inhabitants of Chicago understand this for they encourage running the best cars in every direction from that city. They would never submit to making it difficult to reach Chicago from the Atlantic cities. Can California afford to clog up its great highway—shut off the very men who are most likely to benefit us? We do not think so."

Ashland & Great Western.

The plan of reorganization proposed by the President of this company is receiving an amount of support greater than ever its most sanguine friends could have anticipated. The bonds of all classes and certificates of debentures actually deposited with Messrs. Bischoffsheim & Goldschmidt, and at the offices of the company, already exceed ten millions. The offices of Messrs. Bischoffsheim are literally crowded with the securities of the company, and as rapidly as the huge iron boxes are provided for their custody they are filled with the securities. Little short of a ton in weight of the bonds

have been deposited, and so heartily have the holders entered into the scheme that not a single dissentient has yet presented himself to find fault with, or to suggest modifications of, the proposed plan. With the view of giving additional facilities for the reception and registration of the securities, a suit of rooms adjoining the offices of Messrs. Bischoffsheim, and at present in the Exeter & Salisbury.

This road, which is to run from Exeter station on the Boston & Maine Railroad southward through the towns of Exeter, Kensington and Southampton, N. H., to connect with a branch of the Eastern road at Amesbury Mills, Mass., a distance of 12 miles, is likely to be put under contract the present summer, and finished next year.

Great Western of Canada.

Travel has greatly increased on the Sarnia Branch of this road, and two express trains have been put on lately to accommodate it.

Missouri Pacific.

The City Council of St. Louis has passed an ordinance authorizing the Missouri Pacific Railroad to extend its track to the levee, and to lay a track along the river front to connect the Iron Mountain road with the Missouri road.

occupation of Mr. Hazlewood and the Peruvian Bondholders' Committee, will be exclusively appropriated, on and after Tuesday, to the business of the office for the reorganization of the Atlantic & Great Western Company. Bond and debenture holders, however, must not permit the success already achieved to cause them to relax in their efforts to place the company upon its new and satisfactory basis. The greater the support given to the scheme of the directors, the earlier will be the attainment of the objects sought, and the less powerful will be the objection which may be brought against the scheme.—*London Railway News*.

New Albany & St. Louis Air Line.

The New Albany *Ledger* states that \$1,546,500 has been subscribed to the stock of this company. The company have let the contract to build that part of the road between Princeton and Mt. Carmel to Dr. Andrew Lewis, of Princeton, and it will be completed by the 1st of January next.

Grand Junction & Storm Lake.

It is proposed to build a railroad from Grand Junction, where the Des Moines Valley road crosses the Northwestern, northwest to the Dubuque & Sioux City road at Storm Lake, a distance of about 85 miles.

St. Paul & Sioux City.

On the 12th inst. in the Senate, bills were passed continuing the St. Paul & Sioux City Railroad across Dakota to Yankton, and also a land grant in aid of the same.

Chesapeake & Ohio.

This company on the 9th inst., purchased from the State of Virginia the Blue Ridge tunnel on that road, paying therefor \$600,000 in bonds of the State.

Meridian, Riverside & Texas.

This is a corporation which proposes to build a railroad from Meridian, Mississippi, southeast to Woodville, the terminus of an old railroad from Bayou Sara, La., and near the southeast corner of Mississippi, to Riverside, on the Mississippi. A branch a few miles long would connect it with the old railroad from Natchez east to Malcolm, and by this line it is proposed to make connection with a road across Louisiana to Texas. Louis Trager, of Black Hawk, La., is the leading spirit of the project.

Verona & Bentonville.

A company was organized lately at Bentonville, Arkansas, to build a railroad from Verona, Mo., a station on the South Pacific Railroad 40 miles east of Neosho and about the same distance southwest of Springfield, southward through Cassville and Washburn, in Barry county, Mo.; Bentonville, Fayetteville, Cane Hill, Van Buren and to Fort Smith, Ark. Such a road would give an outlet to a fine district in northwestern Arkansas now almost out of the world, but said to be naturally quite as attractive as Middle Tennessee or Kentucky.

Maysville & Lexington.

Contracts for three principal bridges on the Maysville & Lexington (Ky.) Railroad have been awarded to Irvine & Co., of Ohio. Contracts for the other work were made at the following rates: Twenty-three cents for excavating dirt, and 1 1/4 cents per 100 feet for all hauling beyond 100 feet; bridge masonry at \$10.75; culverts at \$4 per yard; moving loose rock 50 cents per yard. Parks & Co. get the road from Carlisle to Paris; Mr. Rion the two miles next to Millersburg, and from thence Martin Higgins and Pat. Conner get three miles, ending near Myall's; from thence to Stoner not yet let; from Stoner to intersection of Kentucky Central Railroad, near the Winchester Pike, to Mike O'Conner.

Iowa Midland.

The roadbed for about ten miles westward from Lyons is now ready for ties and rails, and the work will go for-

ward as fast as paid-up installments will permit. It is thought that before the close of the present year the cars will enter Anamosa.

Rockford, Rock Island & St. Louis.

The road is about completed from Beardstown northward to Monmouth, and it is expected that the line will be completed to Rock Island by October.

Chicago & Southwestern.

The grading is nearly completed from Washington to Fairfield, 25 miles, and most of the bridges are raised. Five hundred men are at work on the line. Track-laying was commenced last Tuesday and is to be completed to Fairfield by September.

Laclede & Fort Scott.

The work of grading the section between Lebanon and Buffalo, Dallas county, was commenced on the 4th inst., by Mr. Burgess, of St. Louis, the contractor. The counties between Lebanon and Fort Scott have subscribed enough, it is thought, to secure the grading of that part of the road.

The Rock Island Bridge.

On the 6th inst. bids were received and opened from the following companies, for the material and erection of the superstructure of the new Mississippi bridge at Rock Island: Detroit Bridge and Iron Works; Kellogg, Clarke & Co., Phoenixville, Pa.; Smith, Latrobe & Co., (Baltimore Bridge Company); Keystone Bridge Company, Pittsburgh, Pa.; L. B. Boomer, Chicago, Ill. There was a variation of \$70,000 between the highest and lowest bids. The award will be made in about three weeks.

Port Huron & Lake Michigan.

This road, which is to make a connection with the Peninsular Railway at Lansing, is completed from Port Huron west to Imlay, 35 miles.

Baltimore, Pittsburgh & Continental.

At a meeting of the incorporators and stockholders on the 13th inst. the matter of the proposed railroad was discussed, and it was resolved to proceed without delay to complete the survey from Belleville to Kenton, some 60 miles in distance, and the following committee was appointed to carry out this object: L. T. Hunt, Gen. J. S. Robertson, David Richards, and Geo. J. Bell.

Mansfield, Cold Water & Lake Michigan.

Actual subscriptions to this proposed road have been obtained in Mansfield to the amount of \$68,500, and enough to make it \$100,000. It is expected that \$200,000 will be raised in a few weeks.

Southern Minnesota.

A branch of this road from Lanesboro northwestward through Chatfield was projected some years ago, and was supposed to be as good as built; at least it was put down on most of the railroad maps and is shown on them to this day. But the project has been neglected of late and is but just now revived. The Chatfield *Democrat* says: "J. C. Easton has finally signed the contract between the town of Chatfield and the Southern Minnesota Railroad. Therefore the coast is now clear, and we may reasonably expect that the Lanesboro & Chatfield Railroad will soon be built."

ELECTIONS AND APPOINTMENTS.

Jesse W. Crouse, formerly Superintendent of Telegraph of the Pennsylvania Railroad, has been appointed Assistant Superintendent of the Northwestern Telegraph Company with headquarters at St. Paul, Minn.

Mr. H. Taylor, Paymaster of the Erie & Pittsburgh Railroad, has been elected Treasurer of the newly organized Canada Southern Company.

B. H. Buck, late foreman of car shops, is appointed Master Car Builder of the North Missouri Railroad in place of J. P. May.

The newly elected officers of the Pittsburgh & Connellsville Railroad are Wm. O. Hughart, President; J. H. Page, Jr., Secretary and Treasurer; Benj. H. Latrobe, Chief Engineer. Directors—Wm. Oden Hughart, G. L. B. Fetterman, John Fleming, Wm. Philips, Wm. Baldwin, Pittsburgh, Pa.; Cyrus Meyers, Somerset, Pa.; Joseph Pennock, Philadelphia; Benj. Deford, John Hopkins, Hazeltine G. Vickery, Wm. H. Perkins, Israel Cohen, Baltimore, Md.

At a special meeting of the Directors of the Milwaukee, Manitowoc & Green Bay Railroad Company, held in Milwaukee on the 5th inst., the following officers were elected for the ensuing year: Hon. Joseph Vilas, of Manitowoc, President; Hon. S. W. Cozzens, of New York, Vice President; C. C. Barnes, of Manitowoc, Treasurer; R. W. C. Merrington, of New York, Secretary.

It is the intention of the company to have their grade completed from Milwaukee to Port Washington during the present month.

The annual meeting of the stockholders of the Lafayette, Muncie Railroad Company was held at Lafayette, Ind., on the 4th inst., and resulted in the election

of Adams Earl, Moses Fowler, John W. Burson, Jos. S. S. Buckler, John Green, A. B. Given, H. T. Sample, M. L. Pierce, W. S. Lingle, Owen Ball, John Opp, H. W. Chase, and W. J. Templeton, as director.

Adams Earl was re-elected President, and E. M. Talbot appointed Secretary. Thos. Coleman was continued Treasurer.

John E. Blunt, who for fifteen years past has been Civil Engineer of the Galena Division of the Chicago & Northwestern Railway, and is widely known in the West as a talented, careful, faithful and accurate engineer, has accepted an appointment as Chief Engineer of the Chicago, Aurora & Iowa Railroad, which is to be graded this season from Aurora most of the way to the Mississippi.

Wm. B. Strong, for some time past general agent of the Chicago & Northwestern Railway at Omaha, has accepted an appointment as General Freight Agent of the Burlington & Missouri River Railroad, in place of George C. Morton, who has resigned. Mr. Strong is a railroad man of unusual ability and energy. Last fall he declined an appointment as Superintendent of the Rockford, Rock Island & St. Louis Railroad. Of Mr. Morton the Burlington *Gazette* says: "Mr. Morton is a young man of fine attainments, with large railroad experience, and is capable of filling any railroad position. His many friends here will learn with regret that he contemplates leaving for another field of railroad usefulness."

At a meeting of the stockholders of the Rock Falls & Chicago Railroad Company held at Rock Falls (opposite Sterling, Ill.) June 29, 1870, the following named persons were elected Directors: Almon Wheeler and A. P. Smith, of Rock Falls; W. A. Sanborn, Lorenzo Hapgood and Thomas A. Galt, of Sterling. At a subsequent meeting of the Board of Directors A. P. Smith was chosen President, Thomas A. Galt Vice President, W. A. Sanborn Treasurer and Lorenzo Hapgood Secretary. A correspondent writes that "This road, if built now, will be built in the interest of a road now mainly completed and looking for an outlet to Chicago."

The office of General Ticket Agent having been abolished on the Indianapolis, Cincinnati & Lafayette Railroad, Mr. A. E. Clark, who has occupied the position, will henceforth assume the position and title of Chief Ticket Clerk. All freight ticket reports, or any business relating thereto should be addressed to him. F. B. Lord remains General Passenger Agent.

At the annual meeting of the stockholders of the Hastings & Dakota Railway company, on the 14th inst. the following named persons were elected directors: Wm. G. Leduc, Oakes Ames, Alex. Mitchell, Russel Sage, Julius Wadsworth, W. S. Gurnee, N. A. Cowdry, F. P. James, and L. P. Morton. All except the first two are directors of the Milwaukee & St. Paul Company.

The following appointments of Division Superintendents of the Atlantic & Pacific Telegraph have been made: C. G. L. Goodwin, of the First Division, from New York to Albany and Buffalo, with headquarters in New York; E. O. Waite, of the Second Division, from Buffalo to Chicago, with headquarters in Chicago; J. J. Dickey, of the Third Division, from Chicago, to Ogden, Utah, headquarters at Omaha; F. L. Vandenburg, of the Fourth Division, from Ogden to San Francisco, and all lines of the company on the Pacific coast, headquarters at Sacramento.

A circular from John W. Bofinger, President of the St. Louis & New Orleans Packet Company directs that all correspondence relative to the passenger business, report of ticket sales, remittance of balances, and drafts for balances, heretofore sent to E. B. Byington, must be sent to the President, John W. Bofinger, until further notice. This company accepts all tickets issued via the Atlantic & Mississippi Steamship Company, and the circular includes that company's business.

The Memphis & St. Louis Packet Company has issued a similar circular. Reports, remittances and drafts relating to its passenger business should be sent to John A. Scudder, its President, instead of E. B. Byington as heretofore.

PERSONAL.

On the occasion of the resignation of S. S. L. Hommedieu, President of the Cincinnati, Hamilton & Dayton Railroad Company, on the 4th inst., after twenty-two years continuous service, the employees of the road, and of the Dayton & Michigan, and the Cincinnati, Richmond & Chicago roads, presented him a handsome gold hunting-case Nardin watch, with a fine, heavy neck-chain, a beautiful diamond pin, a pair of sleeve buttons, with the monogram "L.H." set with small diamonds. Accompanying them was a parchment, with the names of the donors, and a simple inscription, closing with

"hoping that they may be in the future a remembrance of by-gone days." Mr. L'Hommedieu also received a fine tobacco box, the personal gift of his successor, Mr. D. McLaren.

Alexander H. Lewis, Vice President of the Ohio & Mississippi Railroad Company, died in Cincinnati on the 3d inst., of consumption. Mr. Lewis was born in Edwards county, Illinois, in 1823, but early in life removed to Cincinnati, which was his home for most of the time thereafter. He commenced his railroad experience as a conductor on the Little Miami Railroad, and eventually became Assistant Superintendent of that road. He went to the Ohio & Mississippi Railroad eight or ten years ago as Superintendent of the Eastern Division. He was afterwards General Superintendent, and retired from that active position only a few months ago, when he was elected Vice President. The Cincinnati *Commercial* says of him: "None who knew him well, not to say 'intimately,' could fail to recognize in him extraordinary qualities of self-command under all circumstances, the mildness and kindness of an even temper, and a genial disposition. Those associated with him in business 'knew him as an indefatigable and untiring worker, always true as steel to interests intrusted to him, and exacting, but none beyond the point of justice, in his demands upon those under him."

TRAFFIC AND EARNINGS.

It is estimated by the Buffalo *Commercial Advertiser* that the New York Central & Hudson River Railroad will earn this year (year, ending Sept. 30,) from \$23,000,000 to \$24,000,000, while the charges upon their stock and bonds, including the sinking fund of the latter, amount to only \$8,500,000. The net income to the \$90,000,000 stock and scrip will be nearer 11 per cent. than 8 per cent.

The total revenue of the railways of British India last year was 5,152,916L as compared with 5,145,957L in 1868. The mean extent of line open in 1869 was 4,128 miles. The average weekly receipt per mile worked last year was 25L 11s., as compared with 25L 2s. in 1868.

The earnings of railroads reported weekly or monthly are only approximate, returns not being full enough to make them accurate until some weeks after the time reported for. This is especially true of car service on foreign roads. A striking example of the difference between estimated and actual earnings is shown by the reports of the Chicago, Rock Island & Pacific Railroad, as given month by month, compared with corrected report for the year, published with the annual report. Both are given in the table below:

	Earnings reported monthly during the year.	Earnings for same months, given in the Annual Report.
1869.		
April.....	\$363,900	\$388,385
May.....	419,000	449,932
June.....	508,000	523,841
July.....	440,300	455,606
August.....	490,900	534,652
September.....	579,040	720,664
October.....	581,000	684,155
November.....	475,600	479,226
December.....	357,700	393,468
1870.		
January.....	368,800	401,375
February.....	396,30	449,654
March.....	443,700	500,393
	5,329,100	5,995,266

The Connecticut River Railroad extends from Springfield, Mass., northward 50 miles to South Vernon, Vt., with branch 2½ miles long from Chicopee (four miles north of Springfield) to Chicopee Falls, and another branch, one mile long, from Holyoke Depot (eight miles north of Springfield) to South Holyoke. The earnings of this road for the years ending November 30, 1868 and 1869, were as follows:

	1868.	1869.
From passengers.....	\$274,363 34	\$27,494 81
From freight.....	314,725 14	353,378 65
From mails.....	5,000 23	6,068 49
From express.....	17,083 40	14,501 89
From rents.....	7,186 58	7,755 65
	\$619,348 69	\$649,196 49

Expenses.....	\$380,349 61	\$395,442 77
Net earnings.....	\$329,006 08	\$255,753 73

The company have 16 locomotives. Miles run by passenger trains, 163,567; by freight, etc., trains, 143,409—total, 306,976. Number of passengers carried, 750,703; do. carried one mile, 8,923,930. Tons of freight carried, 279,212; do. carried one mile, 6,780,348. Earnings per mile of road, \$12,349. Earnings per mile run, \$2,114. Net earnings per mile run, 83.3 cents. Percentage of expenses to earnings, 60.6 per cent.

The Chesapeake & Delaware Canal extends from Delaware City, Delaware, westward to Black Creek, Md., 13½ miles, and unites by a channel ten feet deep the heads of Delaware and Chesapeake bays. The revenue for the year ending May 31, 1870, was as follows:

From tolls.....	\$414,302 95
From all other sources.....	5,612 07
Expenses and interest on funded debt.....	\$419,815 02
Net earnings.....	\$163,069 03



PUBLISHED EVERY SATURDAY.

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Editorial Announcements.

Correspondence.—We cordially invite the co-operation of the Railroad Public in affording us the material for a thorough and worthy Railroad paper. Railroad news, annual reports, notices of appointments, resignations, etc., and information concerning improvements will be gratefully received. We make it our business to inform the public concerning the progress of new lines, and are always glad to receive news of them.

Articles.—We desire articles relating to railroads, and, if acceptable, will pay liberally for them. Articles concerning railroad management, engineering, rolling stock and machinery, by men practically acquainted with these subjects, are especially desired.

Our Prospectus and Business Notices will be found on the last page.

CHICAGO & MICHIGAN LAKE SHORE RAILROAD.

This company has a road in operation from New Buffalo, Michigan, northward along the lake shore to St. Joseph, and had made arrangements for building further northward along or near the lake shore to a point a few miles east of Grand Haven. There it was intended to form a junction with a railroad now in course of construction from Grand Rapids westward to a point near the lake, and thence northward through Muskegon, Whitehall, and Pentwater to Manistee. The latter road was called the "Grand Rapids & Lake Shore Railroad." Both were projects of the Michigan Central Company.

It is now announced that the two corporations will be consolidated under the name of the "Chicago & Michigan Lake Shore Railroad Company." The road is to be completed and in operation from New Buffalo to Pentwater, and from Grand Rapids to a junction with this line by the 1st of January next, and it is probable that it will be extended to Manistee within six months thereafter. A. H. Morrison of St. Joseph, President of the company, has made a contract with the firm of Hale, Ayer & Co., of Chicago, for all the spikes, bolts and fish-joints for the line as far as Pentwater, to be delivered by the 1st of November.

Under this arrangement the road becomes one of the most important in Michigan. It will have a trunk line from New Buffalo close to the lake shore as far north as Manistee, likely to be extended as the country further north becomes more populous. The line to Grand Rapids will then form a branch of the main line, giving a short—very nearly the shortest possible—route between Chicago and Grand Rapids, and giving Detroit, through the Grand River Valley road, direct access to all the western border of the State, from which it is now almost cut off.

The entire length of the main line from New Buffalo to Manistee will be not less than 180 miles, and the branch to Grand Rapids will be about 20 miles long. The distance from Chicago to Grand Rapids by this route will be about 170 miles; to Muskegon, a little less; to Pentwater, 220 miles; to Manistee, 250 miles.

The road will reach a country which is growing in population and wealth faster than any other part of Michigan. Contrary to prevailing opinions, a large part of the country near the lake shore as far north as Grand Traverse Bay, is a very fine farming country, and throughout its whole extent, near the lake, is very favorable to the production of fruit. It is not necessary

to call attention to the importance of its lumber business, for the largest supplies of the Chicago market come from this eastern shore of Lake Michigan. The business of this coast is with Chicago. Here it sells its lumber and here it purchases its supplies. The new road will be especially a Chicago road, and it is probable that its trains will run regularly to and from Chicago.

INDIANAPOLIS, BLOOMINGTON & WESTERN RAILWAY.

The officers of this company, as was announced some weeks since, celebrated the opening of their road from Pekin to Danville, Illinois, last Friday and Saturday in a manner that will probably be profitable to the company and which was certainly agreeable to the various members of the press invited to participate in the excursion. The road is at present completed from Indianapolis to Crawfordsville, Indiana, forty-two miles, and the track is laid ten miles further west. The bridge over the Wabash, at Covington, a Howe truss, is building under the superintendence of Messrs. Wells, French & Company of Chicago. The gap of forty-four miles between Crawfordsville and Danville is being rapidly closed up by the contractors, B. E. Smith & Co., who expect to complete their work as early as next September. By that time too, the one hundred and seventeen miles now in operation between Danville and Pekin will be in the most perfect condition. About three-fourths of the line is smooth and well ballasted and the work is being done in the most thorough manner. Several of Mr. Lunt's gravel plows for unloading gravel cars (lately described in these columns) are in use and give general satisfaction. Mr. Lunt is at hand superintending their working, and the officers of the company are naturally warm in the praise of a device which so remarkably economizes time and labor.

The final western terminus of the road is not definitely settled. Negotiations are pending with the Peoria, Pekin & Jacksonville Company for the use of their track from Pekin to Peoria, but it is not likely that this arrangement will be made, and in this event the company will build a bridge over the Illinois river at Pekin and extend their line eight miles to a junction with the Peoria branch of the Chicago, Burlington & Quincy, four miles from Peoria, and send their business westward over this line. The eastern connection is for the present at Danville with the Toledo, Wabash & Western. The eastern disconnected forty-two miles of the road is in operation and runs into the Lafayette, Cincinnati & Indianapolis depot at Indianapolis. Their permanent depot accommodations at that point are uncertain.

In securing the rolling stock of the company a policy has been adopted which is, as far as we know, entirely new. All the car wheels, journals, and journal bearings are exact duplicates of each other, so that, as is often the case, when these parts of the machinery become unfit for one portion of the service they may be readily transferred to the other cars and still do advantageous work. The driving wheels and other parts of the locomotives are also duplicates, the advantages of which are obvious and generally recognized in well regulated shops. The rolling stock consists of twenty-three locomotives of uniform capacity, built at the Rhode Island Locomotive Works, and about four hundred cars of all kinds, from Jackson & Sharp's shops at Wilmington, Delaware. The passenger cars are both elegant and comfortable and with such high ceilings as to give one the impression that the problem of ventilation is at last solved—by enclosing "all out-doors."

The shops now being built at Urbana it is intended shall be as perfect as possible in their appointments for doing good and economical work; at any rate they should be, under the supervision of two as able men as Mr. King, the Chief Engineer and Mr. Otis, the Master Mechanic. The main shop will be 100 by 45 feet, with an L attached, 50 by 35 feet. The blacksmith shop, stationary engine room and boiler room will be under one roof, 60 by 40 feet. A brick round-house will contain eighteen stalls. The car house, now completed, covers a space of 200 by 45 feet. At Pekin there will be built this season a car house 220 by 50 feet, and a round-house to accommodate ten locomotives.

The advantages which the company possesses for getting fuel on the line of the road are very unusual. Two miles east of Pekin, veins of excellent coal have been discovered, and a company has been formed which has bound itself to supply the railroad company for ten years at such a low price as will scarcely more than cover the cost of mining. Also, three miles west of Danville, John C. Short & Co. are mining a coal bank, close to the line of the road, from which they supply the company their best quality at one dollar and eighty cents per ton. At such prices for fuel as these one of the heaviest items of running expense is almost done away with.

The following stations and distances on the western division may be of interest as they have not heretofore been published:

	Miles.		Miles.
Toledo, Wabash & Western Junction	65.7	Leroy	74.2
West Danville	2.0	Delta	79.7
Hilliard	5.8	Illinois Central Junction	81.9
Oakwood	9.2	Bloomington	81.9
Fithian	14.4	Alton Junction	91.5
Ogden	18.7	Danvers	101
St. Joseph	23.4	Mackinaw	106
Urbana	32.1	Tremont	111.5
Champaign	33.9	Leaside	115.5
Manheim	44.2	Peekin & Southwest Junction	117.5
Farmer City	57.2	Peekin	117.5

The general offices of the company will be located at Urbana, where there is to be constructed a four-story building, 105 by 64 feet, which will afford hotel accommodations, waiting rooms, ticket offices, etc., and here, among other officers of the company, may be found Mr. Clark R. Griggs, President; J. S. Oliver, General Superintendent; Thomas King—as the gentleman himself expresses it, "plain Thomas King"—Chief Engineer; H. C. Diehl, General Freight Agent; John T. Otis, Master Mechanic; and there may also be found—and, as Captain Cuttle advises, "when found make a note on it"—the General Ticket Agent, Mr. N. E. Scott.

THE ILLINOIS CENTRAL IN IOWA.

The last rail has been laid on the Iowa Falls & Sioux City Railroad, and there is now a continuous line of rail from Dubuque to Sioux City. Although the last rail has been laid, the road is not yet completed, and until it has been put into satisfactory condition, the Illinois Central, which has a contract to lease the road, will not accept it and operate it, and it is not likely that the entire line will be operated as one road for some weeks yet. Very soon, however, the contractors are likely to put on trains which will run regularly and afford tolerable accommodations for passengers and freight to and from way stations.

The road thus opened for business extends from Fort Dodge to Sioux City, a distance of 137 miles, and the country through which it passes has no other outlet. The nearest parallel line is the Chicago & Northwestern, which at its nearest point is 35 miles south. On the north, the Milwaukee & St. Paul Company has a line completed from McGregor to Mason City, which it is extending across Iowa. So far as completed it is from 30 to 50 miles north of the Dubuque & Sioux City line, and it will be nearly parallel with this line in its westward extension, though it may approach within twenty miles about fifty miles west of the Dakota boundary. The Sioux City & Pacific will compete with it for business at Sioux City, but scarcely at all for any other business, as its course is southward, and the Dubuque line northward from Sioux City, and twenty miles west of Sioux City they are nearly forty miles apart. From Sioux City to Fort Dodge, 137 miles, there is no cross road, and we may say, none is likely to be constructed very soon. At Lemars, 23 miles northwest of Sioux City, the St. Paul & Sioux City road is expected to form a junction, and to use the track of the Dubuque road thence to Sioux City. At Fort Dodge the line will be crossed at right angles by the line of the Des Moines Valley Railroad, which is likely to bring much business and take away very little. The next crossing is at Ackley, 60 miles further east, where the Iowa Central crosses it. This is also a north and south road, and not in any sense a competing line, though it may compete with the Cedar Valley Branch of the Dubuque & Sioux City line, which diverges near Cedar Falls, 34 miles east of Ackley, and is completed to the Minnesota line directly south of Austin. It is reported that the Milwaukee & St. Paul will connect their Minnesota line from this point with the Iowa Central, and give as little as possible to the Dubuque road. On the other hand, there is a probability that a new road will be built from St. Paul through Mantorville to connect with this Cedar Valley Branch, and this will render it altogether independent, and open an independent route for business between St. Paul and Dubuque and St. Paul and Chicago. Moreover it is likely, and that very soon, to have connections to the South, which will enable it to obtain a large share of the traffic between Minnesota and St. Louis.

The Dubuque Southwestern Railroad, which diverges at Farley, 22 miles west of Dubuque, is a feeder of the main line.

Like the other Iowa railroads parallel to it, this railroad extends through a country of remarkable fertility, almost every acre of which is cultivable. It has very few swamps, scarcely a foot of barren land, and but a small area of woodland. Moreover its products are of the kind which give the heaviest traffic. It is more than any other part of Iowa yet developed a wheat country. While the roads south of it are likely to transport more corn and stock, it will, doubtless, very soon carry more wheat than any of them. On the western half of this

line most of the country is still unoccupied, but is settling very rapidly, and with its new facilities for transportation it presents attractions to immigrants scarcely equalled elsewhere. In a very few years we may expect to see the whole country on the line utilized—either cultivated or pastured—and producing for export an amount of agricultural products which will give the road very heavy traffic.

In all this, we have considered only the local business of the road. Its through business it must share with the Chicago & Northwestern and its Sioux City connection, the Sioux City & Pacific. That business is already considerable, including the largest part of the shipments to and from the Upper Missouri and the mining regions of Montana. Its increase will depend on the settlement and prosperity of Dakota and Montana, which, if we may trust the reports, are more attractive and more generally cultivable than the districts further south. Without waiting for this, we may be sure that the Dubuque & Sioux City road, and the Illinois Central Company which is to operate it, will have a large and profitable traffic, and that the country on the line and the city of Chicago will be greatly profited thereby.

THE NORTHWESTERN CONSTRUCTION COMPANY.

This is the name of the association of contractors who have taken the contract to construct the Northern Pacific Railroad from the head of Lake Superior across the State of Minnesota to the Red River of the North. From an article in the Minneapolis *Tribune* we learn that this company consists of John L. Merriam, of St. Paul; D. C. Shepard, of Minneapolis; A. P. Balch, of Hanover, N. H.; Dorilus Morrison, of Minneapolis; Wm. W. Eastman, of St. Anthony, Minn.; George A. Brackett, of Minneapolis; John Ross, of Missouri; Donald Robinson, of Canada; Ferdinand E. Canda, of Chicago; and Henry R. Payson, of Chicago.

Mr. Morrison, who is President of the company, was Vice-President of the Minnesota Valley Railroad Company in its early days and had charge of the construction of its road. He is still its Vice-President. He is an energetic man of large wealth.

D. C. Shepard, is Vice-President of the company. He has had charge of the operations of the Minnesota Construction Company, which is building the Northern Pacific Railroad, and is also Superintendent of the Iowa & Minnesota and Iowa & Dakota divisions of the Milwaukee & St. Paul Railway. He is thoroughly acquainted with railroads and railroad operations, and has unusual administrative ability.

A. P. Balch, is General Manager. He has been a contractor for more than twenty years, and has built railroads in Canada, Vermont, Michigan, and other States.

Dorilus Morrison, the Treasurer, is one of the wealthiest citizens and most successful business men of Minneapolis.

Wm. W. Eastman is a member of the Executive Committee.

George A. Brackett is General Agent of the Northern Pacific Railroad Company and a man of wonderful energy.

John Ross is an old contractor who has done a large amount of work of various Canada railroads, the Hannibal & St. Joseph, and the Kansas Pacific. He has charge of the Eastern Division, which extends from the junction with the Lake Superior & Mississippi Railroad to a point beyond the Mississippi.

Donald Robinson has been engaged in railroad business for more than thirty years and has gained a wide spread reputation and considerable wealth as a contractor. To him will be entrusted the superintendence of the construction of the Western Division.

Ferdinand E. Canda is a well known bridge and lock builder and contractor of Chicago. His special knowledge of bridge construction must prove of great value to the company.

Henry R. Payson, of Chicago, is a member of the Auditing Board and of the Executive Committee. He is a man of business ability and financial experience, but has not been known heretofore as a railroad man.

The Master Car Builders' Association.

At the meeting of this Association last month a committee was appointed to report topics for discussion at the next annual meeting, which will be held in Richmond next June. The committee consisted of R. S. Ramsey, of the Pennsylvania Railroad, Joseph Jones, of the New York Central & Hudson River, S. J. Hayes, of the Illinois Central, James McGee, of the Pittsburgh, Cincinnati & St. Louis, and V. D. Perry, of the Hartford Providence & Fishkill. Their report which was adopted, is as follows:

Your committee appointed to report subjects to this convention for reference to its various committees, on de-

tails pertaining to our profession, beg leave to submit the following:

1. Can the dead weight in the present form of passenger and freight cars be reduced with safety, and the cost of transportation thereby lessened, and would not the adoption of some other material than wood, in the construction of passenger and freight cars, secure greater strength with less weight than we now have?

2. What is the best method of heating and ventilating passenger cars, to secure safety from fire in case of accident, and freedom from dust and cinders?

3. What is the best method of preventing loss of links and pins from railroad cars?

4. What is the best and most economical form of oil box and journal bearing for passenger and freight cars, one that will insure freedom from overheating, and economy in the use of oil?

5. What is the best and most economical wheel and axle for use under passenger and freight cars, and at what pressure per square inch should wheels be forced upon axles?

6. What is the best and safest method of hanging brakes on passenger and freight cars, and what is the best method of applying power to the brake to insure safety and economy in the running of trains?

7. What is the best and most economical form for journal and centre-motion spring for passenger and freight cars? also, the best plan of application for securing an easy motion to the car, and thereby economize in the repairing of cars and of truck?

8. What kind and form of roof is best for box and stock freight cars?

9. What should be the standard number of threads to the inch for different sized bolts, and what should be the thickness of nut in proportion to the size of bolt?

10. What is the best platform for passenger cars, and the best method of coupling cars so as to prevent telescoping in case of collision or other accident?

Your committee beg to suggest the propriety of requiring the committees appointed to investigate the various subjects to prepare a schedule of questions referring to their particular subjects, and forward copies of the same to all of the car masters and manufacturers of the country, requesting their views in relation to the different matters.

The President appointed the following committees to report on the several subjects of discussion:

On Dead Weights—C. F. Scovill, Illinois Central, Chicago, Ill.; J. N. Mileham, Buffalo & Erie, N. Y.; Ruel Dean, Boston & Albany, Boston, Mass.

On Ventilation—John Kirby, Lake Shore & Michigan Southern, Adrian, Mich.; M. P. Ford, Little Miami, Cincinnati, Ohio; G. W. Demarest, Northern Central, York, Pa.

On Links and Pins—George Dunham, Union Transportation Company, Philadelphia, Pa.; William Johnson, New York Central & Hudson River, Buffalo, N. Y.; E. Lockwood, Camden & Amboy, Bordentown, N. J.

On Oil-Boxes and Journal-Bearings—William Cleave, Cleveland, Columbus & Cincinnati, Cleveland, O.; J. B. Somerby, Eastern, Salem, Mass.; J. Marquis, Pittsburgh, Fort Wayne & Chicago, Alleghany, Pa.

On Wheels and Axles—C. A. Smith, Erie Railway, Jersey City, N. J.; H. M. Perry, Cheshire Railroad, Keene, N. H.; I. W. Van Houten, Pennsylvania, Philadelphia, Pa.

On Brakes—R. S. Ramsey, Pennsylvania, Pittsburgh, Pa.; James Jones, New York Central & Hudson River, New York, N. Y.; Hugh Gray, Chicago & Northwestern, Chicago, Ill.

On Car Springs—Enos Varney, Fitchburg Railroad, Charlestown, Mass.; Samuel Frost, Georgia Railroad, Union Point, Ga.; James McGee, Pittsburgh, Cincinnati & St. Louis, Steubenville, Ohio.

On Car-Roofs—William Campbell, Chicago & Northwestern, Clinton, Ia.; George Shattuck, New Orleans, Mobile and Chattanooga, Mobile, La.; N. L. Davis, Rutland & Burlington, Rutland, Vt.

On Standard Size of Bolts and Nuts—V. D. Perry, Hartford, Providence & Fishkill, Hartford, Ct.; George Hackett, Central of New Jersey, Elizabethport, N. J.; R. Hitchcock, Connecticut River Railroad, Springfield, Mass.

On Platforms and Couplings—David S. Baker, New Jersey Transportation Company, Jersey City, N. J.; Richard Attridge, Cleveland, Columbus, Cincinnati & Indianapolis, Indianapolis, Ind.; E. A. Olmstead, Long Island Railroad, Hunter's Point, L. I.

M. C. Andrews, of the New York Central & Hudson River, Leander Garey, of the New York & Harlem, C. D. Mills, of the New York Central & Hudson River, C. F. Scovill, of the Illinois Central, and R. S. Ramsay, of the Pennsylvania Railroad, were also appointed a committee to report at the next meeting on the best manner of painting passenger and freight cars.

Mr. F. D. Adams, of the Boston & Albany Railroad, President of the Association, called the attention of members to the importance of a uniform name for each article used in the construction and repair of railway cars. Most of the members expressed themselves as having often received a telegram from some brother car builder calling for some article familiar to all, but calling it by some name not used by the party addressed, thereby causing much delay and trouble. After much discussion, and some very decided views expressed upon this matter, it was moved that a committee of three be appointed to prepare a dictionary of terms applicable to car-building and repairs, and report at the next annual meeting. Messrs. James McGee, of the Pittsburgh, Cincinnati & St. Louis Railroad, Hugh Gray, of the Chicago & Northwestern, and M. C. Andrews, of the New York & New Haven Railroad, were appointed as such committee.

REGISTER OF EARNINGS.

FOR THE THIRD WEEK IN JUNE.

Cleveland & Pittsburgh, (263 miles) 1870.....	\$34,614.54
" " (368 miles) 1869.....	40,692.11

Increase (10 per cent.)..... \$4,924.43

Michigan Central, (329 miles) 1870.....	\$36,625.19
" " (424 miles) 1870.....	363,187.12

Decrease (1 per cent.)..... \$3,436.12

Chicago & Alton (465 miles) 1870.....	\$411,986
" " (431 ") 1869.....	409,834

Increase (3 1/4 per cent.)..... \$9,193

Chicago & Northwestern, (1,157 miles) 1869.....	\$1,298,984
" " (1,157 miles) 1870.....	1,154,639

Decrease (3 1/4 per cent.)..... \$103,755

Chicago, Rock Island & Pacific (608 miles) 1870.....	\$29,512
" " (594 miles) 1869.....	593,841

Increase (1 per cent.)..... \$5,671

Milwaukee & St. Paul, (866 miles) 1870.....	\$755,737
" " (835 miles) 1869.....	678,800

Increase (11 1/4 per cent.)..... \$76,937

Ohio & Mississippi, (393 miles) 1870.....	\$349,987
" " (340 miles) 1869.....	283,336

Increase (11 1/4 per cent.)..... \$96,751

Marietta & Cincinnati, (351 miles) 1869.....	\$118,648
" " (351 miles) 1870.....	111,117

Decrease (6 1/4 per cent.)..... \$7,531

Indianapolis, Cincinnati & Lafayette (389 miles) 1870.....	\$159,524.69
" " (302 miles) 1869.....	134,739.85

Increase (20 1/5 per cent.)..... \$36,788.17

Pacific of Missouri, (515 miles) 1870.....	\$163,328
" " (535 miles) 1869.....	249,349

Increase (5 3/5 per cent.)..... \$13,979

St. Louis & Iron Mountain, (210 miles) 1870.....	\$116,243.27
" " (210 miles) 1869.....	80,019.00

Increase (45 1/4 per cent.)..... \$36,233.27

FOR THE FIRST WEEK IN JULY.	\$340,080
Chicago & Northwestern (1,157 miles) 1870.....	340,080
" " (1,157 miles) 1869.....	348,937

Increase \$83

Chicago & Alton (465 miles) 1870.....	\$28,276.78
" " (431 miles) 1869.....	82,507.03

Increase (7 per cent.)..... \$5,769.16

—Preparations are being made for a general reduction in the fares for all classes of passengers on the Prussian State railways, which are to be uniform throughout the North German Confederation, and the new tariff will come into operation at the same time as the alteration in the unit of measure. On the 1st of January next the metrical decimal system of weights and measures, which since the beginning of this year is in permissive use, will then become compulsory in all the twenty-two States of the Confederation, and then there will be no more "German mile," but simply metres and kilometres, as in France, Belgium, Italy and Switzerland. It cannot be said that railway traveling in Germany even now is excessively dear, when first-class fares—which the Germans say are only paid by "Princes and Englishmen"—are not more than 1 1/4d. per English mile; but notwithstanding this very moderate charge, the price is to be lowered 20 per cent. Thus, the fares are to be reduced in first-class carriages from six groschens to 5 groschens per German mile; for second-class, from 4 1/4 to 3 1/4 groschens; and for third-class, from 3 to 2 groschens. The reduction for fourth-class passengers has not yet been definitely settled, but it will probably be from its present rate of 1 1/2 groschens to 1 groschen, or less than a farthing per English mile; these are the charges on all ordinary passenger trains. On the other hand, the charge for passengers by mail and express trains, which is now one-third more than by the ordinary ones, will be only one-quarter more, and a similar proportionate reduction will be made on return tickets.

—M. M. Kirkman, who for some time has been General Accountant of the Chicago & Northwestern Railroad, in the new organization has the title of Cashier and General Accountant. In his new position he is relieved of the accounts of the ticket and freight departments, which are now kept by the heads of those departments, but he has added the duties lately performed by the Assistant Treasurer and the Cashier. The position, therefore, is a very important one, and the appointment of Mr. Kirkman to the office is a tribute to his integrity and ability which railroad men will appreciate. Mr. Kirkman is one of the rising railroad men of the city. Very few have at once so complete and minute a knowledge of railroad business and administration, and the rare faculty for organization and administration which render an officer efficient and his subordinates also.

—Treasurer F. H. Short, of the Cincinnati, Hamilton & Dayton Railroad, refused to pay in gold the interest on the Dayton & Michigan Railroad, guaranteed by the former road. It is probable that a law-suit will be brought to compel payment.

—The Aurora (Ind.) *Independent* is authority for the following: "The excessive heat one day last week expanded the rails on the Louisville, New Albany & Chicago Railroad so that some of them were bent nearly double, and others curled into the shape of an S."

Chicago Railroad News.

Pittsburgh, Cincinnati & St. Louis.

Last Saturday a new time schedule was adopted, by which the day express leaves half an hour later, that is at 8:10 a.m., the night express leaving at 7:40 p.m., as heretofore. Passengers by the day express arrive in Cincinnati at 9:30 p.m. of the same day, and at Louisville at 11:30 p.m.

In addition to the Lansing train another accommodation is put on running between Chicago and Dalton. This leaves Chicago at 10:00 a.m., and arrives at 3:25 p.m. The Lansing accommodation leaves at 5:30 p.m. and arrives at 8:55 a.m.

Chicago & Alton.

The lease of the Louisiana & Missouri River Railroad to this company has been executed, and preparations have been made for its construction and connection with Jacksonville Division of the Chicago & Alton.

Chicago & Northwestern.

Mr. Dunlap, Mr. Gault and Mr. Hobart went this week to Green Bay to make some arrangements concerning the proposed extension of the Wisconsin Division from Green Bay northward to Menominee, which, it is hoped, will be made this season. It is also announced that the Madison Division will be extended as soon as possible to Winona, probably passing through Baraboo and through, or very near, LaCrosse. This is a very important line, and is the chief thing needed to perfect the Northwestern's system. It will connect with the Winona & St. Peter, which the Northwestern owns, and the St. Paul & Chicago, which it controls. Thus it will secure to the Northwestern a connection with all the railroads in Minnesota reaching the Mississippi and with St. Paul, the growing city of Duluth (which *must* go by way of Chicago to the East for five or six months of the year) and with the Northern Pacific. The roads needed to complete the Chicago & Northwestern are the Green Bay line, to unite the Wisconsin and the Peninsula divisions, the Madison & Winona line and the Winona & St. Paul line. The latter is well under way. The other two require the construction of about 250 miles of road, and it is expected, we believe, to have all constructed before the end of the next year. When this is done, with the Minnesota road already owned by the Company, it will have just about 1,650 miles of road, and that without any extension of the Winona & St. Peter road beyond St. Peter. Certainly then more than ever the Chicago & Northwestern will deserve to be called a "great road." All this it needs in order to be at all complete.

Michigan Central.

The earnings of this road for the month of June show a slight decrease—less than one per cent. For the last ten days of that month, however, there was an increase of \$12,572.73.

Freight Rates.

Rates on West bound freight from New York dropped again last Thursday. At present they are, first-class, 80 cents; second class, 70; third class, 60; fourth class, 50; special, 45; sugar, 37. This is a reduction of 32 cents on first class, 20 on second, 10 on third, and 5 on fourth class, and at these rates merchants might be expected to move heavy stocks, only at this time there is very little to move. Rates Eastward remain firm.

LOCOMOTIVE STATISTICS.

Michigan Central.

From the report of the Locomotive Superintendent, Mr. A. S. Sweet, for the year ending May 31, 1870, we obtain the following condensed statement of repairs and services.

The road employed 100 locomotives, of which 24 were coal burners and 76 wood burners. These locomotives made the following mileage on 323 miles of road:

Passenger trains.....	904,916
Freight ".....	1,115,564
Working ".....	158,100
Switching ".....	383,523
 Total.....	 2,561,902
Cost of locomotive repairs.....	\$26,415.03
Cost of locomotive service.....	147,252.14

COST OF FUEL.

54,988 cords wood, \$3 98 34-100.....	\$319,039.19
17,935 tons coal, \$4.30.....	75,329.10

Total cost of fuel.....

29,690 pounds rags, at \$8 8-10 cents.....	\$2,612.72
45,730 pounds waste, at 18 6-10 cents.....	8.565.57
21,514 gallons oil, at 77 cents.....	16,565.78

Average number of miles run to each cord of wood consumed.....

34.24

Average number of miles run to each ton of coal consumed.....

38.78

Average number of miles run to each gallon of oil consumed.....

119.08

Average number of freight cars hauled per train.....

22.55

RECAPITULATION.

Cost per mile run for repairs.....	10.39 cents.
for engineers, firemen and wiping.....	5.74 cents.
for fuel.....	11.49 cents.
for oil.....	642 cents.
for rags and waste.....	433 cents.

Total cost per mile run.....

28.69 cents.

The requisite amount of stock having been taken to organize the Chester & Centralia Railroad Company, a meeting was called by the incorporators, at Centralia, Illinois, last Saturday. E. S. Condit was chosen President; Dr. A. T. Barnes, Vice-President; F. Kohl, Treasurer; J. C. Cooper, Secretary.

Extraordinary Suit Concerning the Central Pacific Railroad.

We have before us the printed transcript of a suit which has just been commenced in the Fifteenth District Court of San Francisco, wherein the following parties appear as plaintiff and defendants: Samuel Brannon, plaintiff vs. Central Pacific Railroad Company of California, Western Pacific Railroad Company, Leland Stanford, C. P. Huntington, Mark Hopkins, Charles Crocker, E. B. Crocker, Charles Marsh, A. P. Stanford, E. H. Miller, Jr., B. B. Redding, the San Francisco & Alameda Railroad Company, the San Francisco & Oakland Railroad Company, Wells, Fargo & Co., Contract and Finance Company, Southern Pacific Railroad Company, San Joaquin Valley Railroad Company, California & Oregon Railroad Company, San Francisco & San Jose Railroad Company, the Dutch Flat Wagon Road Company, D. O. Mills, D. O. Mills & Co., Alfred A. Cohen, John Doe, Richard Roe, John Doe, Jr., and Richard Roe, Jr. (the names of the four last defendants are unknown to plaintiff), defendants.

Brannon sets out that on the 4th day of November, 1864, he subscribed and paid for, at the par value thereof, 200 shares of the capital stock of the Central Pacific Railroad; and that he now owns these 200 shares. In the next article, or account, he sets forth the following:

"That the defendants, Leland Stanford, C. H. Huntington, Mark Hopkins, Charles Crocker, and Charles Marsh, originally subscribed to said capital stock, and agreed to take and pay for the shares thereof so subscribed by them respectively, at their par value, as follows, to-wit: Said Leland Stanford, 150 shares; said C. P. Huntington, 150 shares; said Mark Hopkins, 150 shares; said Chas. Crocker, 150 shares; and said Charles Marsh, 50 shares. That afterward, but at what particular date or dates plaintiff is ignorant, all the shares of the capital stock so as aforesaid subscribed for by said last-named defendants, purport to have been issued by said last-named corporation to said last-named defendants respectively.

"The plaintiff is informed, and believes, and therefore avers, upon and according to his information and belief, that said last-named defendants did not, nor did either of them, ever pay to said corporation, or deliver to it any money or other valuable thing for the shares of capital stock so purporting to have been issued by the last-named defendants, respectively; but in truth, and in fact, the whole of such stock was so issued without any consideration ever having been paid or delivered therefor, illegally, in fraud, and in violation of the statute in such case made and provided, and in fraud of the rights of the plaintiff and the other stockholders of the Central Pacific."

The plaintiff sets out that the only stock besides his own which was ever subscribed for and paid for in good faith was as follows: County of Placer, 2,500 shares; county of Sacramento, 3,000 shares; Samuel Hooper, 50 shares; Benjamin T. Reid, 50 shares; Glidden & Williams, 25 shares; Orville D. Lombard, 200 shares; Anna F. Judah, 25 shares; Samuel P. Shaw, 50 shares; R. O. Ives, 25 shares; and about 900 shares now held by unknown individuals.

"That the said mentioned defendants and their confederates, to the plaintiff unknown, assuming to act, and in fact, but illegally, acting as directors of said Central Pacific, and composing a majority thereof, have caused to be issued to themselves and divers other confederates, to plaintiff unknown, large amounts of the capital stock of said corporation; but that all of said stock so issued to them and their said confederates has been issued without consideration, illegally and fraudulently, and the issuance thereof was and is wholly illegal and void."

A charge of malfeasance or something worse is set up in the following words:

"That the defendants, Leland Stanford, Charles Crocker, Charles Marsh, C. P. Huntington, Mark Hopkins, and others their confederates, to plaintiff unknown, were the Directors of the Central Pacific, to manage the concerns thereof for the first three months after the organization of the defendants, Leland Stanford, Charles Crocker, E. B. Crocker, C. P. Huntington, Mark Hopkins, A. P. Stanford, and Charles Marsh, and their confederates, to plaintiff unknown, pretending, appearing and falsely claiming to be the nominal owners of a majority of the capital stock of the said Central Pacific, purporting to have been issued by it, and by other secret devices and contrivances unknown to plaintiff, combining and confederating together, elected themselves a majority of the Directors of said last mentioned corporation, and have from thence hitherto, as nominal Directors thereof, exercised the entire control and management of all its affairs, business, subsidies and assets, to their joint and individual benefit, advantage, profit and gain, and to the loss, detriment and disadvantage of said last mentioned corporation, of plaintiff and the other stockholders thereof, as hereinafter more particularly averred and charged.

Plaintiff further avers that he is advised, informed and believes, and therefore upon and according to his information and belief avers, that neither of the said defendants, Leland Stanford, A. P. Stanford, Hopkins, Huntington, Charles Crocker, and E. B. Crocker, or their confederates, although they claim to be respectively, and assert they are respectively, owners of a large number of shares of the capital stock of the said Central Pacific, over and above what they respectively purport to have subscribed for at the time of the organization of the said last mentioned corporation, yet in truth and in fact, as plaintiff is informed and believes, and therefore avers, upon and according to his information and belief, all such shares, not so as aforesaid subscribed for, have in part been purchased and acquired by said last-named defendants and their confederates with the assets, money and property of said last mentioned corporation, and in part issued to said defendants and their confederates without any compensation moving to said last mentioned corporation, illegally, fraudulently, and with intent to secure for themselves the control of said corporation, in violation of the statute under which said corporation was organized and is acting; and all

such shares are held in trust by said last named defendants for said corporation."

Plaintiff then cites the acts of Congress by which the company were empowered to construct a railroad and telegraph line from San Francisco to Echo City, in Utah Territory, a distance of about 784 miles. That the alternate sections of public lands within the limits of twenty miles on each side of the road were granted in aid of the road, amounting to 12,800 acres per mile, and that bonds were granted, as follows:

"And there was further granted to it, the said corporation, the Central Pacific, and the Secretary of the Treasury of the United States was authorized and required to issue to said Central Pacific, in aid of the construction of the said railroad and telegraph line, bonds of the United States of America of the denomination of \$1,000 each, payable in thirty years after the date thereof, bearing 6 per cent. per annum interest, payable semi-annually to the amount of sixteen, thirty-two and forty-eight, such bonds for each and every mile of said railroad and telegraph line so completed and equipped as aforesaid, according to the character of the land or country over which the same might pass—that is to say, sixteen of said bonds per mile for 7 18-100 miles from the city of Sacramento to the western base of the Sierra Nevada Mountains, forty-eight bonds per mile for 150 miles across and over the said Sierra Nevada Mountains, and thirty-two bonds per mile for 627 32-100 miles eastwardly across the Great Salt Lake basin to Echo City aforesaid, in the Territory of Utah, amounting in all to 27,389 120-1,000 bonds of \$1,000 each, and to the sum of \$27,389,120 in value."

The donations made to the Western Pacific Railroad are recited, and it is shown that this road, with all its assets, belongs wholly to the Central Pacific Railroad Company.

The following is the summing up of assets:

"Plaintiff avers and charges that the following is a correct summary, statement and estimate of the various subsidies and aids granted to said Central Pacific in aid of the construction of its railroad and telegraph line, as near as he can ascertain the same:

Lands granted by the United States.....	\$30,908,000 00
Lands granted and donated by various corporations etc., situated within the State of California.....	5,000,000 00
Lands granted and donated by various corporations and individuals situated within the State of Nevada.....	3,000,000 00
Lands granted and donated by various corporations and individuals within the Territory of Utah.....	2,000,000 00
Donation by the State of California.....	1,500,000 00
Bonds on which the State of California guaranteed the interest.....	12,000,000 00
Bonds of Placer County.....	250,000 00
Bonds of city and county of San Francisco.....	400,000 00
Bonds of the city and county of Sacramento.....	300,000 00
 CURRENCY.	
Bonds of the United States Government.....	\$ 27,389,190 00
First mortgage bonds of said Central Pacific, delivered to defendants, L. Stanford, Charles and E. B. Crocker, Huntington, Hopkins, A. P. Stanford, Marsh, and Miller, as above charged.....	37,389,190 00
Second mortgage bonds of said Central Pacific, delivered to defendants, L. Stanford, Charles and E. B. Crocker, Huntington, Hopkins, A. P. Stanford, Marsh, and Miller, as above charged.....	15,601,741 83
Second mortgage bonds issued and sold as above charged.....	11,787,578 17
 Total.....	\$156,835,366 00

The plaintiff charges that only a part of this sum was ever legitimately expended in the construction of the road; and that the Directors wrongfully converted the remainder to their own use. He charges that a contract or finance company was organized under the name of C. Crocker & Co., through which the Directors, refusing to let out contracts to the highest bidder, did in effect let the contracts to themselves, by which extraordinary profits were secured to the "ring." He charges that in this way the cost of the work was excessive, reaching, in some instances, 200 per cent. above the actual value of the work done. That the aggregate profits to the defendants from these contracts amounted to \$7,000,000. The plaintiff avers, in another part of his complaint, that the Contract and Finance Company sublet contracts in some cases at about one-tenth of the sum for which they had been taken by the company. Plaintiff claims that all the profits of this Contract Company should be divided *pro rata* among all stockholders. It is charged that the cost of the construction of the Dutch Flat Wagon Road, \$150,000, was charged to the account of the Central Pacific, and that the profits, \$350,000 should go to the stockholders.

Then history is given of the connection of Wells, Fargo & Co., by which in consideration of an exclusive contract granted to the Express Company to carry express packages, bullion, etc., the stock of Wells, Fargo & Co. was "watered," and that \$1,500,000 of the watered stock was delivered to the directors of the railroad company.

The plaintiff avers that the Central Pacific Railroad Company have purchased all the property and assets of the Western Pacific Railroad, the San Jose Railroad, the Southern Pacific Railroad, the Oakland & San Francisco Railroad and Ferry Company, and the San Francisco & Alameda Railroad and Ferry Company. He asks that, during the pending of his petition, a receiver may be appointed, and that the defendant may be restrained from disposing of property held in trust for the benefit of all the stockholders of the company. A schedule of this property is filed with the complaint. Benjamin F. Butler and M. G. Cobb are set down as the plaintiff's counsel.

The averments are extraordinary; and it is not likely that all of them can be supported by the testimony.

The plaintiff sets out that enormous profits were made in the construction of the road, and that the assets exceed, by many millions, the cost of the same. This is a bona fide stockholder, he is entitled to a *pro rata* share of the profits, which are, no doubt, exaggerated in his petition. If the case is ever heard on its merits we shall know what is true and what is fictitious in these averments. If an issue is joined, we shall note with interest the defence which is set up. Upon the face of the matter, it looks as if this suit was brought more for speculative purposes than for the attainment of higher ends.

—San Francisco Bulletin, July 6.

MECHANICS AND ENGINEERING.

Causes of the Breaking of Axles.

The *American Railway Times* comments on the opinion of Mr. L. J. Fleming, of the Mobile & Ohio Railroad, concerning the causes of broken axles, which he attributes chiefly to "the granulating effect of the heavy, 'rigid rail when laminated, and the very bad quality of metal of which axles are frequently made." The *Railway Times* wakes the following comments:

"Running trains over laminated rail ends, no matter whether the rail is stiff or limber, we do not think a safe or an economical practice, and the failure of rolling stock so treated may be safely estimated to occur in a very short time, no matter whether the material is good or otherwise. Axles and wheels used on eight-wheel tenders have to submit to pretty rough usage, as any one may see who watches the motion of the tender at high speeds on a road where the rails are not rightly in plane. The principal destructive effects come from the side lurch which the side bearing springs aid to render still more severe. That is: when the wheels of one truck go down on one side, a large proportion of the load is thrown upon the wheels, and the springs on the other side of the truck aid to throw additional weight upon the already overburdened wheels and axles. When the wheels come up again upon the rail, the blow reacts, and the rear truck has to go through with the same destructive motions and blows. Thus in going twenty or thirty feet the tender has to undergo a series of side-wise lurches and twists that are a terrible test to the goodness and strength of the material of which the wheels, axles, and other parts of the tender are made. Then in addition to this, the tender, from its comparatively short wheel base and heavy weight, gets a pitching motion, something like a boat in a 'chop sea,' and then it must not be forgotten that all these destructive effects are increased when there is any sensible and continuous deflection at the successive rail ends. The weight on each wheel of even the largest tenders is not such as ought to create any doubt as to its being carried safely, but when so largely increased by this side lurching and pitching forward and back, it does become dangerous and destructive to even the best made axles and wheels. We regard the modern eight-wheel tender as the most destructive agent in the shape of rolling stock that is put upon the track, and it will continue so to be until a better system of elasticity is devised and used. The side springs which, on an uneven road, operate to throw a large disproportion of the weight so frequently on one set of wheels ought to be banished, and springs with a centre bearing, like that devised by Mr. Bissell, substituted. When that is done we shall have less trouble with axles and wheels, and a great saving made in the wear of rails. But to return to the axle question. More than one destructive disaster has come from a defective form of axle, independent of the quality of the material that it was made from. This part of the question is treated at length in our issue of May 28, 1868, and Mr. Fleming and other railway managers may peruse with profit that paper, containing the experience and deductions of one of the most intelligent mechanics and observers on this very important matter. We are glad to note that he intends hereafter to hold manufacturers to a strict responsibility for the results of wear and breakage, and other managers can well follow in his lead."

Reports of Experience with Railroad Material and Inventions.

The *American Railway Times* makes the following sensible remarks in a recent editorial:

"It is a good feature of the annual report of any railway manager or superintendent to discuss the value of devices or material in use, and give the results of his own observation and practice. His remarks may not always be correct, but even his mistakes may become valuable, because they lead others to compare their practice with his, and discuss more in detail the different questions coming up in common railway practice. A fortnight since, in printing some portion of the annual report of Mr. L. J. Fleming, Chief Engineer and Superintendent of the Mobile & Ohio Railroad, upon the wear of rails, and of rail fastenings, we commented upon some of his statements, because we thought he was clearly wrong, while at the same time we were gratified that he thought the matters spoken of important enough to find a place in his report; and we are justified in saying that our railway officials, managers, engineers and superintendents would be of vastly more value if they would think upon and discuss the same questions in their reports. It was *discussion* that brought down the fuel expense from 33 to 11 cents per mile run of the Massachusetts railroads, and frequent comparison of the expenditures of different roads in fuel, oil, track repairs, engine expenses and other details, are of vastly more value than is commonly thought. Discussion and comparison of the results of daily practice lead to greater care, greater economy, and greater safety and efficiency,

and we therefore welcome Mr. Fleming's report while we are compelled sometimes not to agree with his theories."

Mississippi River Bridge at Hannibal.

A telegram from Quincy dated July 9 says that the location for a railroad bridge across the Mississippi River at Hannibal has been decided upon, and the contract will be let within a week and the work to be finished in eighteen months. The bridge is to be of the Pratt truss pattern, and will consist of eight spans. The distance from shore to shore is 1,580 feet; the draw span is to be 160 feet in the clear.

Uniformity in Rolling Stock.

At the recent convention of the Master Car-Builders Association the following resolutions, presented by I. W. Van Houten of the Pennsylvania Railroad, were adopted:

Resolved, That in consequence of many of our roads running their cars from the East to Chicago, Cincinnati and St. Louis, and as we think the time not far distant when they will run from the Atlantic to the Pacific, thereby making it important that a uniform pattern of trucks, size, and uniformity of castings should be adopted by the respective roads, at as early a day as possible, without unnecessary expense.

Resolved, That we respectfully but earnestly recommend to our respective general superintendents, that they will assist the master car-builders to bring about such a desirable result, which we believe will reduce repairs and save the levying of cars on side-tracks, loaded with through freight, and in many other respects will tend to reduce expenses, and give better satisfaction at large.

Performances of Locomotives.

Correspondents of the *Locomotive Engineers' Journal* give the following statements of exceptionally good work by particular locomotives. One is engine No. 42, on the Pittsburgh, Cincinnati & St. Louis Railway, which was run two years and ten months, with an average of 137½ miles per day, or 3,500 miles per month, making a total of 119,000 miles without ever having her driving wheels from under her. To compare with this a correspondent writes to the *Journal* as follows: "The engine we propose bringing to your notice is Baldwin's 'build, purchased by the Western Maryland Railroad Company in 1859. She was run on this road until the first of December, 1865, with but slight repairs. She was then taken into the shop for general repairs by S. R. Kelly, Master Mechanic; went on the road again on the 16th of February, 1866. She was run from that time up to the 2d of July, 1868, by J. J. Derr. She was then given in charge of the fireman, S. Black, who ran her one year without losing a trip. On the 24th of February, 1870, she left the track, caused by a breaking of an axle, up to which time her tires (which were 'chilled') never had anything done to them, making four years and eight days, with an average of 120 miles per day, or 3,120 miles per month. Total 150,720 miles."

Another instance is of an engine on the Toledo, Wabash & Western Railway, reported by its engineer and the Master Mechanic as follows:

"Engine No. 115 is of Rogers' manufacture—15 inch cylinder, 23 inch stroke, 5 feet 6 inch driver. The engine had a general rebuilding in March, 1866, received new fire-box, flues, coal burner, and has run ever since with same flues, making an average of 2,900 miles per month, or 147,600 miles during that time, on regular passenger train. She is now in the shop, and upon examination, the flues are found good, and the firebox only worn in the centre of the side sheets."

Altoona Railroad Shops.

A correspondent of the *Baltimore Sun*, who accompanied a recent excursion of Southern railroad men over the Pennsylvania Railroad, speaks as follows of the Altoona shops, and the contemplated additions to them:

"About 800 men are employed in the different departments. Improved machinery for doing almost every character of work is in operation, including some not often found in the shops of other railroads. The riveting of the boilers for the locomotives, for instance, is nearly all done by a powerful riveting machine driven by steam power. Two small stationary engines are now being built for pumping gas into cylindrical tubes, to be used on passenger trains instead of the oil lamps. Every improvement that is calculated to increase the comfort and safety of travelers is at once adopted by the Pennsylvania road. On many of its passenger trains the Westinghouse patent brakes are now employed, and it is claimed are found to be superior to any other appliance yet invented for instantaneously checking the speed of a train in motion. The apparatus is worked by an air pump on the locomotive by the engineer. Several trials were made to-day to show the southern railroad men how admirably this new brake works. A train of six cars can be stopped in its own length, the last car not passing beyond the spot on the track where the engineer will turn on the brake, and the machinery is of the simplest nature imaginable. It does away with brakemen, and gives the engineer complete control of the running of the train."

"At Altoona there are three round-houses with stalls

for 100 locomotives. The old works have been found to be most too contracted for the progress of the road, so that about a mile from where they are, the company has commenced to erect on a lot of 20 acres a series of new shops. Nearly the whole of an immense round building of 430 feet diameter is already under roof, and is to be devoted to the building of freight cars alone. It contains forty tracks, each of which will hold two long cars with plenty of room for the workmen's benches, &c. The walls are already up and being pushed forward to completion of a blacksmith shop 200 by 70, and also of a planing mill 220 by 70 feet. The foundations have been laid for a passenger car erecting shop 220 by 130 feet, of a machine and cabinet shop 300 by 70, and of a paint shop for passenger cars of 300 by 70 feet. No railroad in the country has such extensive shops as these will be when completed, and even these are so arranged apart from each other that they can afterwards be enlarged."

Steam on Common Roads.

A correspondent of *The Engineer* writes as follows from Aberdeen, Schtland, under date of June 20:

"I read with interest your article on 'Steam on Common Roads.' As I have now been using a road steamer for regular traffic for about fourteen months, I think that a short account of my experience may interest many of your readers and correct some misapprehensions. My flour mills are situated on the Don, about three miles from Aberdeen. One third of the road is very bad in every respect, being narrow and tortuous, with a gradient of one in seven and a half to one in twelve for a considerable part of the way. I have lost so many valuable horses in consequence of injuries, that for some years I have been on the lookout for a traction engine that would answer my purpose. I examined several, but saw difficulties connected with them until I saw Mr. Thomson's road steamer doing extraordinary work at Edinburgh. Mr. T. was an entire stranger to me, but I was so pleased with the performance of his steamer that I gave him an order for a steamer if he would guarantee that it would take my heavy loads up those severe gradients. I had first one of his smaller (6-horse power) steamers, which worked very satisfactorily, but I preferred to take one of 13-horse power that I might have some spare power. This large steamer has now been in steady use for two and half months, and the work it has been performing will speak for itself. It has generally made daily six single journeys of three miles each, carrying each time fifteen tons gross up three severe gradients, not on a well made turnpike road, but on a country road in a rough state. Thus, ninety tons gross have been carried daily between 5 a. m. and 2 p. m., with a consumption of about 6 cwt. coals per diem. I estimate that the steamer is doing the work of at least fourteen horses. A new road has been made to avoid the worst gradient of one in seven and a half, and I expect that I shall be able to take twenty tons each trip in a week or two. My granaries are situated in Aberdeen, and the steamer has to pass along several leading streets on its way to and from the mills. I am very happy that I am able to state that no accident has occurred up to this time, and that horses generally are getting accustomed to it. The breakages have been trifling, and the tear and wear is not more than one would expect from the application of machinery to such rough work."

"I shall be obliged by your inserting this letter in your first issue, as I should wish to correct the impression that the good working of Mr. Thomson's steamer is due to the fine roads near Edinburgh. I can tell of its work over one of the worst roads in the kingdom. I shall be glad if those interested in traction engines will come to see it work. I have frequent visits from engineers from all parts of the world, who, as well as the representatives of several European Governments, have expressed their surprise at the work performed."

Another correspondent writes:

"To me it seems surprising that carriages should not go by steam on ordinary roads, for in 1837 I used to ride from the top of Cheapside, at three in the afternoon, the busiest time in the day, to Mile End gate on a steam carriage, and though we were between two omnibuses, we pulled up 'dead,' causing no inconvenience. On reaching Aldgate steam was put on, and we traveled at ten miles per hour to Mile End. Why should not this go on now, with our great improvements in locomotion? I believe the engine belonged to Mr. Hancock, of Bow."

—A meeting of the incorporators and stockholders of the Baltimore, Pittsburgh & Continental Railroad Company was held at Belleville, O., on the 18th inst. The meeting proceeded to the election of directors, with the following result: John H. Page, Jr., of Pittsburgh; L. H. Hunt, of Kenton; F. C. Leblond, of Celina; David Richards, of Mount Gilead; J. M. Osborne, of Belleville; J. G. Chamberlain, of Leontina; R. A. Waddell, of Columbians; A. R. Arter, of Hanovertown, and Chas. B. Ferrill, of Nashville. The board elected was afterwards called to order, and L. T. Hunt elected temporary president and Geo. S. Bell temporary secretary.

The Effect of Low Fares on the Amount of Travel.

Mr. S. N. Jones persists in bringing his peculiar views under the notice of an indifferent public and an incredulous railway proprietary. We have no doubt Mr. Jones is perfectly sincere in his belief that railways would be best managed according to his plan, but we cannot but smile at his simplicity and the want of knowledge in railway affairs he displays. For instance, he speaks in his pamphlet, lately published, thus—"shareholder delegate to directors, and directors to managers, the scale to be adopted." Now the fact is, shareholders have nothing to do with fixing the fares to be charged. The directors have all the powers of a company in their hands, excepting those of general and special meetings of shareholders. The working and management of a line belong to the directors. Between the half-yearly or special meetings the shareholders have absolutely no voice at all in the management of their lines in any shape or way. The directors have all power. This is both legally and actually the fact.

"A farthing is more than the average a poor man should be charged for being carried a mile by railway," says Mr. Jones; but then he objects even to any mileage rate. "The principle is foreign to the mode of charging by public conveyances. It is not customary to charge so much a mile by omnibus or by steamboat." We differ from Mr. Jones. It is customary to have regard to distance in charging, and the London General Omnibus Company have lately successfully amended their plan of charging, by bringing it more in accordance with the distance traveled. They used to charge 6d. or 4d. for a given long distance, but lately they have altered the charges so as to be more in respect of the distance traveled, generally at the rate of about 1d. per mile. You can now go from Fleet-street to the Bank for 2d.

The principal part of the cost of railway working consists in the necessary train expenses. As the cost of the article is so much per mile, so the charge for it should be so much per mile, just as cloth is sold by the yard because the cost of production varies with the quantity. It would in our judgment be quite unsound were railway companies to charge irrespective of distance. It is the most equitable and sensible course to charge by the mile.

The companies cannot afford to carry at the extremely low fares Mr. Jones suggests. "A farthing is more than the average a poor man should be charged for being carried a mile by railway." The poor man is now charged a 1d. a mile, which is a fare remarkably low. "It is a matter of no moment to a railway company whether a poor man travels one mile or five miles in a train." It costs a company about five times the sum of money to run a train five miles, that it does to run a train (of the same length, &c.) one mile. Train expenses absorb the greater part of the cost of working and managing a line, and they are nearly in proportion to the work done.

Companies can afford to charge a reduced price for season-tickets, just as a man can afford to sell goods wholesale at a less price than retail, and because, moreover, they have the considerable advantages of the money in a lump sum, paid (usually) a year before the last journey is made; the companies, too, have all the benefit of season ticket-holders omitting, from illness and various other circumstances, to use their traveling powers to the full extent. It is also to be considered that the benefit given the public in the shape of season-tickets induces the building of houses in suburban districts, and every house supplies many customers (besides its season ticket holder) to the railway company.

A man (with his wife, etc.) goes to Paris or Scotland for a few weeks. He spends £100, £90 of which pays his hotel, etc. expenses, and £10 his railway fares. If the railway companies ruined themselves by charging him (with others) £5 instead of £10, he would spend £95 instead of £100. Surely if the £5 is a matter of so much importance to him—a first or second-class man—he would stay at home and avoid the whole outlay for the pleasure trip.

It is very certain that if railway companies were to destroy their dividends by knocking down their fares to one-half, or by any other serious amount, the hotel-keepers and others receiving the greater part of the traveler's outlay, would not be so silly as to reduce their charges. The fare reduction for long distances would be pure loss to the railway companies, for we cannot assume that the small saving thereby obtained for the traveler in his total expenses would induce more traveling. If an omnibus or suburban railway fare is

lowered considerably the result might be gain to the omnibus or railway proprietors, since it might induce many additional trips to be made; but the case is quite different with long journey traffic, where £5 spent in railway fares means £40 or £50 total expense of the journey. Railway companies, however, carrying an omnibus traffic do charge low omnibus fares, if not so low as Mr. Jones recommends.

We quite agree with Mr. Allport when he said, "If a system anything approaching that laid down by Mr. Jones were adopted, it would be utter ruin." It must be remembered that the dividend money of railway companies are the gross revenue receipts, less working expenses, less debenture interest, less rents, less guarantees, and less preference dividends. What remains after paying all these prior charges falls to the lot of the ordinary shareholder as dividend. Any loss by injudicious fare reduction would thus severely affect the interests of the ordinary railway proprietor.

The fare question assumes differing aspects according to varying circumstances. If the North London, Metropolitan, or any other low charging London railway, carrying a vast omnibus traffic, were to materially raise their fares they would lose money—net money. We have no doubt about that. The actual experience of the North London some years ago proves it. If, on the other hand, the North London or Metropolitan line were to lower their low fares, we are not quite certain what the result would be; whether it would be beneficial to the company or otherwise. But we are perfectly clear of this, that if the London & Northwestern or Midland were to reduce the fare from London to Manchester, the reduction would be all loss, or nearly so, to the company. Hardly a passenger more would travel the long distance because the fare was reduced a few shillings. The fare is, as we have before said, only a small part of the cost of long journeys, and men of business have no time to be traveling about for the mere love of it, or because the charge is low.

If for long distances the railway fares were greatly reduced, and the degree of accommodation also lowered, whether in speed or condition of the carriages, we doubt not that the long traffic would fall off. It is an ascertained fact that in America—and Americans are very much like ourselves—the introduction of the splendid and costly drawing-room and sleeping carriages on railways, has been productive of increased traveling. The fare is higher—the travelers more. Why? Because the accommodation is greater. It is not because the fare is lower, for it is higher.

The South Eastern Railway Company charge £14 a year for a first-class season ticket from London to Blackheath, where the houses mostly let for rents exceeding £100 a year. Were they to reduce the £14 yearly ticket to £10, would it induce any additional house to be built, or one additional ticket to be taken? We doubt it. But if they took off half the trains, used inferior carriages, or ran the trains at dawdling speeds, it might prejudicially influence the season-ticket traffic.

New Rolling Mills At Joliet.

The following description of the buildings and machinery of these new mills, opened for work this week, is given in the Chicago Tribune:

The festive occasion was the inauguration of the new and magnificent rolling mills recently erected, adjacent to the corporate limits of Joliet, by the Union Coal, Iron, and Transportation Company. It will be remembered that the corner stone of these works was laid on the 9th of October last, with fitting and imposing ceremonies. The company, which is mainly composed of Chicago capitalists, A. B. Meeker being President, J. H. Wrenn, Treasurer, and J. R. Adams, Secretary, these officers also constituting the Board of Directors, obtained the requisite charter in February, 1869, and in October following construction was begun, the citizens of Joliet having demonstrated their hearty interest in the matter by voting an appropriation of \$75,000 as a bonus to secure its location there. The fall mill building is 228 feet in length by 73 feet in width, the walls being of solid cut stone from the Joliet quarries, 24 feet high to the eaves, and surmounted by an iron truss roof, fire-proof in every respect. The "puddle" mill is 191 by 78 feet, with walls and roof the same as the other. These buildings are located upon a sixty-three-acre tract of land lying between, and near, the Penitentiary and the city of Joliet, and fronting upon the tract of the Chicago, Alton & St. Louis Railroad. The foundations of the structure, as well as those of the heavy machinery, rests upon

the solid and inexhaustible stratum of splendid limestone rock, which underlies the surface for miles around, and from whence is quarried the grand source of Chicago's architectural beauty, her building material. The work of man could never have constructed a foundation so firm and lasting, and so valuable in its adaptation to the needs of a rolling mill. Between the two buildings an artesian well has been successfully bored, and from it flows 21,000 gallons of water per day, a quantity ample for all the requirements of the mills, as well as affording a surplus for the supply of the railway tank near by. This water is somewhat tinted with mineral element, and is said to compare closely in chemical analysis with that of the famous Messina Springs, being deemed fully as valuable in a medical point of view. The company owns one mile of side track connecting with the railroad line, and 1,500 feet of dock front on the Illinois & Michigan Canal, a short distance away. Near by the mills are operating four coke ovens, where the company fully expect to be able to manufacture coke from Illinois coal, an attempt hitherto unsuccessful, and thereby obtaining, at a cheap rate, a supply of the fuel necessary for blast furnaces, which will be erected in course of time. At a convenient distance from the mills is located the business office, a neat and substantial looking pile of cut stone, and there are being constructed of the same material ten two-story cottages for the use of the operatives, each house standing upon a half-acre lot of ground, and to be rented to the tenant at a merely nominal rate. As soon as these are completed ten more will be added.

Among the peculiar features of these mills are the items—first, of machinery materially heavier and more durable than that found in similar establishments west of the Alleghany Mountains; and, second, of separate and independent engines for each piece of machinery, also an advantage said to be possessed by no other mill in the West. This latter feature involves the boilers and thirteen engines, being a total of 1,000 horse power. The capacity of the mill is 25,000 tons of rails per year, to produce which 320 men are employed, and about one hundred tons of coal per day consumed, which is procured from mines twelve miles distant. The iron used is from the Wisconsin and Lake Superior mines. The works are under the capable and experienced management of Mr. M. P. Weeks, and are pronounced, by competent judges, to be superior, in many important details, to any in the West. The total cost of construction, machinery, appliances, etc., has been \$350,000.

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Great Western R'y OF CANADA.**5,000 TONS****IRON RAILS FOR SALE:**

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Proposals will also be considered for ties to be delivered on the line of the Illinois Central, or Toledo, Peoria & Warsaw railroads.

Ties must be sound timber, and not less than eight feet long, six inches thick, with eight inches face.

Parties desiring to furnish ties will please state in their proposals the number they desire to furnish, and time and place of delivery.

Also, the kind of timber, and whether hewed or sawed.

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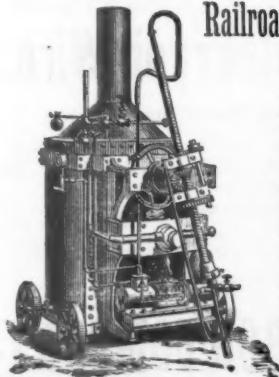
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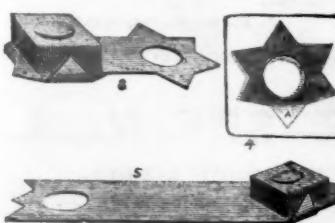
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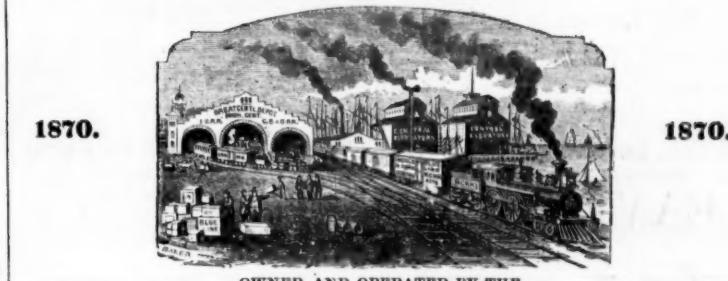
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74 BROADWAY, NEW YORK.

American and English Rails, LOCOMOTIVES AND CARS FISH-PLATES, SPIKES, &c.

— SOLE AGENTS FOR —

Atkins Brothers' Pottsville Rolling Mills, and G.
Buchanan & Co., of London.

BY Special attention given to filling orders for small T and STREET RAILS, of every weight and pattern.

OLD RAILS BOUGHT OR RE-ROLLED, AS DESIRED.

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Winslow Car Roofing Company.

PATENT IRON CAR ROOFS.

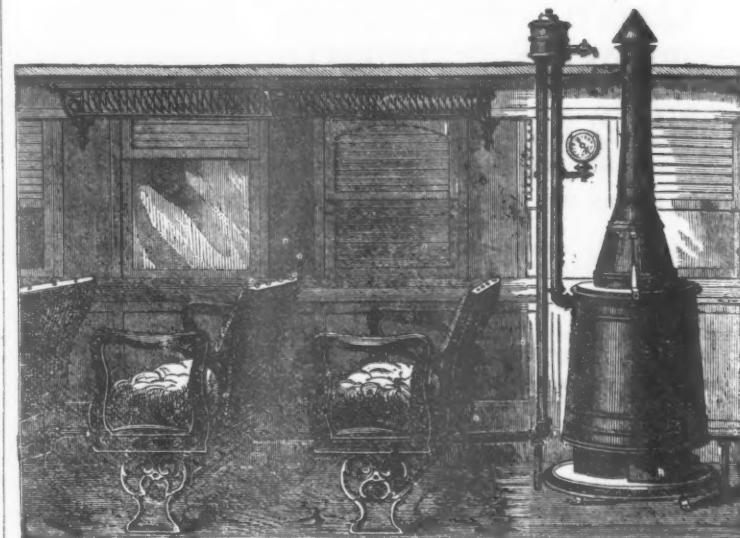
Established, 1859.

No. 211 Superior St. CLEVELAND, O.

Over 20,000 Cars covered with this Roof! We claim that these Roofs will keep Cars dry, and will last as long as the Cars they cover without any extra expense once put on.

BY SEND FOR CIRCULARS.

WARMING AND VENTILATING Railroad Cars BY HOT WATER.



BAKER'S PATENT CAR WARMER.—One way of Applying it.

A very simple, safe and efficient plan for

Warming Railway Carriages!

— BY — HOT WATER PIPES,

WHICH RADIATES THE HEAT DIRECTLY AT THE FEET OF EACH PASSENGER WITHOUT THE NECESSITY OF GOING TO THE STOVE TO GET WARMED!

BY All the finest Drawing-Room and Sleeping Cars in the United States have it, or are adopting it. Full descriptive pamphlets furnished on application.

Baker, Smith & Co.,

Cor. Greene and Houston Sts., N. Y., and 127 Dearborn St., Chicago.

MOWRY Car & Wheel Works,

MANUFACTURERS OF

Railroad Cars, Wheels and Axles, Chilled Tires,

AND ALL DESCRIPTIONS OF

Engine, Car, and Bridge Castings, of any Pattern.

Wheels of all sizes constantly on Hand.

A. L. MOWRY, President,

NEW YORK CITY.

OFFICES: No. 80 Broadway, New York; No. 69 West 3d Street, Cincinnati, Ohio.

WORKS: Cor. Lewis and East Front Streets, Cincinnati, Ohio.

N. G. GREEN, Treas. and Supt.,

CINCINNATI, OHIO

American Compound Telegraph Wire.

More than 3000 Miles now in Operation,

Demonstrating beyond question its superior working capacity, and great ability to withstand the elements. For RAILROAD LINES, connecting a single wire with a large number of Stations, and for long circuits, this wire is peculiarly adapted; the large conducting capacity secured by the copper, with other advantages, rendering such lines fully serviceable during the heaviest rains.

Having a core of steel, a small number of poles only are required, as compared with iron wire construction, thereby preventing much loss of the current from escape, and very materially reducing cost of maintenance. OFFICE AMERICAN COMPOUND TELEGRAPH WIRE CO.

234 West 29th Street, New York.

BLISS, TILLOTSON & CO., Western Agents,

947 South Water Street, Chicago.

MANSFIELD ELASTIC FROG COMPANY



OF CHICAGO.

AMOS T. HALL, President.

J. H. DOW, Superintendent.

Are now prepared to receive and promptly execute orders for RAILROAD FROGS and CROSSINGS warranted to prove satisfactory to purchasers.

For DURABILITY, SAFETY and ELASTICITY—being a combination of Steel, Boiler Plate and Wood—they are UNEQUALLED, as Certificates of Prominent Railroad Officials will testify.

The SAVING TO ROLLING STOCK AND MOTIVE POWER is at least equal to double the cost of the FROG. Orders should be addressed to

CRERAR, ADAMS & CO., Gen'l Agents,
No. 18 Wells Street, CHICAGO.

CHICAGO & NORTHWESTERN R. R.

Comprising the PRINCIPAL RAILROADS from CHICAGO Directly NORTH NORTH-WEST and WEST.

ALL RAIL TO THE PACIFIC OCEAN!

Great California Line.

TRAINS LEAVE WELLS STREET DEPOT AS FOLLOWS:

8:15 A. M. Cedar Rapids Pass 9:15 P. M. Night Mail.

10:30 A. M. Pacific Express. 9:15 P. M. Rock Island Pass.

10:30 A. M. Rock Island Exp. 4:00 P. M. Dixon Passenger. For Sterling, Rock Island, Fulton, Clinton, Cedar Rapids, Boone, Denison, Missouri Valley Junction, Sioux City, Council Bluffs and Omaha, there connecting with the

UNION PACIFIC R. R.

For Cheyenne, Denver, Ogden, Salt Lake, the White Pine Silver Mines, Sacramento, San Francisco, and all parts of Nebraska, Colorado, New Mexico, Arizona, Wyoming, Montana, Idaho, Utah, Nevada, and the PACIFIC COAST.

FROM CHICAGO Hours, 1st Class Fare. FROM CHICAGO Days, 1st Class Fare.

To OMAHA, 23 \$20.00 To SACRAMENTO, 4½ \$118.00

“ DENVER, 52 70.75 “ SAN FRANCISCO, 5 118.00

TRAINS ARRIVE:—Night Mail, 7:00 a. m.; Dixon Passenger, 11:10 a. m.; Pacific Express, 3:50 p. m.; Rock Island Express, 3:50 p. m.; Cedar Rapids Passenger, 6:50 p. m.

FREEPORT LINE.

9.00 A. M. & 9.45 P. M. For Belvidere, Rockford, Freeport, Galena, Dunder, and St. Paul.

4:00 P. M. Rockford Accommodation.

5:30 P. M. Geneva and Elgin Accommodation.

6:10 P. M. Lombard Accommodation.

5:50 P. M. Junction Passenger.

TRAINS ARRIVE:—Freeport Passenger, 2:30 a. m., 3:00 p. m.; Rockford Accommodation, 11:10 a. m.; Geneva and Elgin Accommodation, 8:45 a. m.; Junction Passenger, 8:10 a. m.; Lombard Accommodation, 6:50 a. m.

WISCONSIN DIVISION.

Trains leave Depot, cor. West Water and Kinzie Sta., daily, Sundays excepted, as follows: 10.00 A. M. DAY EXPRESS, for Janesville, Monroe, Whitewater, Madison, Prairie du Chien, Watertown, Minnesota Junction, Portage City, Sparta, La Crosse, St. Paul, and ALL POINTS ON THE UPPER MISSISSIPPI RIVER; Ripon, Berlin, Fond du Lac, Oshkosh, Neenah, Appleton, and Green Bay.

3:00 P. M. Janesville Accommodation.

5.00 P. M. NIGHT EXPRESS, for Madison, Prairie du Chien, Watertown, Minnesota Junction, Portage City, Sparta, La Crosse, St. Paul, and ALL POINTS ON THE UPPER MISSISSIPPI RIVER; Ripon, Berlin, Fond du Lac, Oshkosh, Menasha, Appleton, Green Bay, and the LAKE SUPERIOR COUNTRY.

5:30 P. M. Woodstock Accommodation.

6:20 P. M., Barrington Passenger.

TRAINS ARRIVE:—5:30 a. m., 7:45 a. m., 10:10 a. m., 1:00 p. m. and 7:15 p. m.

MILWAUKEE DIVISION.

MILWAUKEE MAIL, EXPRESS, (ex. Sun.) Waukegan, Kenosha, Racine and Milwaukee, 10:00 A. M. 8:00 A. M. 11:40 A. M. 1:30 P. M. 11:00 P. M. MILWAUKEE ACCOMMODATION, with Sleeping Car attached, 11:00 P. M. EVANSTON ACCOMMODATION, (Daily,) from Wisconsin Div. Depot, 1:30 P. M. KENOSHA ACCOMMODATION, (Sundays excepted) from Wells St. Depot, 4:15 P. M. AFTERNOON PASSENGER, from Milwaukee Div. Depot, 5:00 P. M. WAUKEGAN ACCOMMODATION, (except Sundays) from Wells St. Depot, 5:25 P. M. WAUKEGAN PASSENGER, (Sundays excepted) from Wells St. Depot, 6:15 P. M.

TRAINS ARRIVE:—Night Accommodation, with Sleeping Car, 5:00 a. m.; Day Express, 4:30 p. m.; Milwaukee Mail, 10:15 a. m.; Afternoon Passenger, 8:00 p. m.; Waukegan Accommodation, 8:25 a. m.; Kenosha Accommodation, 9:10 a. m.; Evanston Accommodation, 1:50 and 4:00 p. m.; Waukegan Passenger, 7:55 a. m.; Highland Park Passenger, 4:00 p. m.

PULLMAN PALACE CARS ON ALL NIGHT TRAINS.

THROUGH TICKETS can be purchased at all principal Railroad Offices East and South, and in Chicago at the Southeast corner of Lake and Clark Streets, and at the Passenger Stations as above.

H. P. STANWOOD,
Gen. Ticket Agt.

GEO. L. DUNLAP,
Gen'l Supt.

Western Union Railroad.

CHICAGO & NORTHWESTERN DEPOT, MILWAUKEE & CHICAGO DEPOT, MILWAUKEE.

THE DIRECT ROUTE! CHICAGO, RACINE & MILWAUKEE, TO

Beloit, Savanna, Clinton, Pt. Byron, Davenport, Mineral Point, Madison, Freeport, Fulton, Lyons, Rock Island, Sabula, Galena, Dubuque, Des Moines, Council Bluffs,

OMAHA, SAN FRANCISCO

AND ALL PRINCIPAL POINTS IN

Southern and Central Wisconsin, Northern Illinois, and Central and Northern Iowa.

FRED. WILD,
Gen. Ticket Agent.

D. A. OLIN,
Gen. Superintendent.

CRERAR, ADAMS & CO.,

MANUFACTURERS AND DEALERS IN

Railroad Supplies!

—AND—

CONTRACTORS' MATERIAL.

11 and 13 Wells Street,

CHICAGO, ILL.



Manufacturers of IMPROVED HEAD-LIGHTS for Locomotives, Hand and Signal Lanterns, Car and Station Lamps, Brass Dome Castings, Dome Moldings, Cylinder Heads, and Car Trimmings, of Every Description.

Pan-Handle

AND

Penn'a Central Route East!

SHORTEST AND QUICKEST ROUTE, VIA COLUMBUS, TO PITTSBURGH, BALTIMORE, PHILADELPHIA & NEW YORK

On and after Saturday, JULY 10th, 1870, Trains for the East will run as follows:

[DEPOT CORNER CANAL AND KINZIE STS., WEST SIDE.]

8:10 A. M. DAY EXPRESS.

[SUNDAYS EXCEPTED.] Via Richmond. Arriving at

COLUMBUS ... 2:35 A. M. HARRISBURG ... 10:35 P. M. NEW YORK ... 6:40 A. M. WASHINGTON ... 5:50 A. M.

PITTSBURGH ... 12:00 M. PHILADELPHIA ... 3:10 A. M. BALTIMORE ... 2:30 A. M. BOSTON ... 5:05 P. M.

7:40 P. M. NIGHT EXPRESS.

[SATURDAYS EXCEPTED.] Arriving at:

COLUMBUS ... 11:15 A. M. HARRISBURG ... 5:10 A. M. NEW YORK ... 12:10 P. M. WASHINGTON ... 1:10 P. M.

PITTSBURGH ... 7:05 P. M. PHILADELPHIA ... 9:35 A. M. BALTIMORE ... 9:00 A. M. BOSTON ... 11:00 P. M.

Palace Day and Sleeping Cars

Run Through to COLUMBUS, and from Columbus to NEW YORK, WITHOUT CHANGE!

ONLY ONE CHANGE TO NEW YORK, PHILADELPHIA, OR BALTIMORE!

CINCINNATI & LOUISVILLE AIR LINE SOUTH.

42 Miles the Shortest Route to Cincinnati,

18 Miles the Shortest Route to Indianapolis and Louisville.

—FROM ONE TO—

2 Hours the Quickest Route to Cincinnati!

THE SHORTEST AND BEST ROUTE TO

Columbus, Chillicothe, Hamilton, Wheeling, Parkersburg, Evansville, Zanesville, Marietta, Lexington, Terre Haute, Nashville, ALL POINTS IN CENTRAL & SOUTHERN OHIO, & INDIANA, KENTUCKY & VIRGINIA.

—QUICK, DIRECT AND ONLY ALL RAIL ROUTE TO—

New Orleans, Memphis, Mobile, Vicksburg, Charleston, Savannah, AND ALL POINTS SOUTH.

Cincinnati, Indianapolis and Louisville Trains run as follows:

THROUGH WITHOUT CHANGE OF CARS!

8:10 A. M. 7:40 P. M.

(Sundays excepted) Arriving at

LOGANSPORT	1:15 P. M.	LOGANPORT	1:30 A. M.
KOKOMO	2:35 P. M.	KOKOMO	2:45 A. M.
CINCINNATI	3:30 P. M.	CINCINNATI	3:40 A. M.
INDIANAPOLIS	5:00 P. M.	INDIANAPOLIS	5:10 A. M.
LOUISVILLE	11:30 P. M.	LOUISVILLE	11:40 P. M.

Lansing Accommodation: Leaves 5:30 P. M. Arrives 8:55 A. M.

Dolton Accommodation: Leaves 10:10 A. M. Arrives 3:25 P. M.

PULLMAN'S PALACE SLEEPING CARS!

Accompany all Night Trains between Chicago and Cincinnati or Indianapolis.

Ask for Tickets via COLUMBUS for the East, and via "The AIR LINE" for Cincinnati, Indianapolis, Louisville and points South. Tickets for sale and Sleeping Car Berths secured at 95 RANDOLPH STREET, CHICAGO, and at Principal Ticket Offices in the West and Northwest.

WM. L. O'BRIEN,
Gen. Pass. and Ticket Agent, Columbus.

I. S. HODSDON,
Northwestern Pass. Agt., Chicago.

D. W. CALDWELL Gen. Supt. Columbus.

KANSAS PACIFIC RAILWAY.

Great Smoky Hill Route!

TO

COLORADO, NEW MEXICO, ARIZONA, UTAH,

Montana, Nevada, California and Northern States of Old Mexico.

COMPLETED THROUGH KANSAS, TO

Carson, Colorado, 487 Miles West of Kansas City and Leavenworth.

Close Connections are made with Express Trains of the HANNIBAL & ST. JOSEPH and NORTH MISSOURI RAILROADS, at KANSAS CITY, and with MISSOURI PACIFIC RAILROAD at STATE LINE.

DAILY EXPRESS TRAINS are run between

KANSAS CITY, LEAVENWORTH, LAWRENCE, Topeka, Wamego, Manhattan, Junction City, Salina, Brookville, HARKER, HAYS and CARSON.

Pullman's Sleeping Cars Attached to Night Express Trains!

Passenger Time from Kansas City to Denver, Less than 50 Hours.

Hughes & Co.'s Four-Horse Concord Coaches leave Carson daily for Denver, Central City, Georgetown, &c.

Southern Overland Passenger Express and Mail Coaches leave Carson daily for Fort Lyon, Pueblo, Trinidad, Fort Union, Las Vegas, Santa Fe, &c.

Ask for Through Tickets via Kansas Pacific Railway, "Smoky Hill Route," Freight and Passage Rates as Low and Time as Quick as by any other Route.

R. B. GEMMELL, Gen. Ticket Agent A. ANDERSON, Gen. Supt.

THE FAVORITE THROUGH PASSENGER ROUTE!

Chicago, Burlington & Quincy

RAILROAD. AND CONNECTIONS.

3 THROUGH EXPRESS TRAINS DAILY.

FROM CHICAGO	Hours.	1st Class Fare.	FROM CHICAGO	Days.	1st Class Fare.
To OMAHA, -	23	\$20.00	To DENVER, -	2½	\$70.75
" ST. JOSEPH, -	21	19.50	" SACRAMENTO, 4½	118.00	
" KANSAS CITY, -	22	20.00	" SAN FRANCISCO, 5		118.00

TRAINS LEAVE CHICAGO from the Great Central Depot, foot of Lake Street, as follows:

BURLINGTON, KEOKUK, COUNCIL BLUFFS AND OMAHA.

7:40 A. M. MAIL AND EXPRESS. (Daily except Sunday,) stopping at all stations between Chicago and Burlington; making close connections at Mendota with Illinois Central for Amboy, Dixon, Freeport, Galena, Dunleith, Dubuque, LaSalle, El Paso, Bloomington, &c., &c.

10:45 A. M. PACIFIC EXPRESS. (Daily except Sunday,) stopping only at Riverside, Hinsdale, Aurora, Leland, Mendota, Princeton, Rock Island Crossing, Buda, Kewanee, Galva, Galesburg, and Monmouth, between Chicago and Burlington. PULLMAN PALACE DRAWING ROOM CAR attached to this train daily from Chicago.

TO COUNCIL BLUFFS AND OMAHA, WITHOUT CHANGE!

11:30 P. M. NIGHT EXPRESS. (Daily, except Saturday,) stopping at all principal stations between Chicago and Burlington. ELEGANT DAY COACHES, and a PULLMAN PALACE SLEEPING CAR are attached to this train from Chicago to Burlington, without change! This is the only Route between

CHICAGO, COUNCIL BLUFFS & OMAHA,

RUNNING THE CELEBRATED

Pullman Palace Dining Cars!

The Shortest, Best, Quickest and only Route between

CHICAGO & KEOKUK,

Without Ferrying the Mississippi River!

QUINCY, ST. JOSEPH, LEAVENWORTH AND KANSAS CITY.

10:45 A. M. PACIFIC EXPRESS. (Daily, except Sunday,) with PALACE COACH attached, running through from Chicago to KANSAS CITY, without Change!

5:00 P. M. EVENING EXPRESS. (Daily, except Sunday,) with Pullman Palace Drawing Room Sleeping Car attached, running through from Chicago to QUINCY, without Change!

11:30 P. M. NIGHT EXPRESS. (Daily, except Saturday,) with Pullman Palace Sleeping Car attached from Chicago to GALESBURG; PALACE DAY COACHES from Chicago to QUINCY, without Change!

This is the Shortest, Quickest and only Route between

CHICAGO AND KANSAS CITY,

WITHOUT CHANGE OF CARS OR FERRY.

THE SHORTEST, BEST AND QUICKEST ROUTE BETWEEN CHICAGO AND St. Joseph, Atchison, Weston, Leavenworth, AND ALL POINTS ON THE KANSAS PACIFIC R. Y.

Local Trains Leave:

RIVERSIDE & HINSDALE ACCOMMODATION, 7:00 A. M. & 1:30 & 4:15 P. M.

MENDOTA PASSENGER, 4:15 P. M.

AURORA PASSENGER, 5:30 P. M.

Trains Arrive:—Mail and Express, 3:45 p. m.; Atlantic Exp., 4:15 p. m., except Sunday; Night Exp. 9:05 a. m., except Monday; Mendota Passenger, 10:00 a. m.; Aurora Passenger, 8:15 a. m.; Quincy Passenger 7:30 P. M.; Riverside and Hinsdale Accommodation, 6:50 and 9 a. m. and 5:30 p. m., except Sunday.

Ask for Tickets via Chicago, Burlington & Quincy Railroad, which can be obtained at all principal offices of connecting roads, and at Company's office in Great Central Depot, Chicago, at as low rates as by any other route.

ROB'T HARRIS, SAM'L POWELL, E. A. PARKER,
Gen'l Superintendent, Gen'l Ticket Agent, Gen. West. Pass. Agt.,
CHICAGO. CHICAGO. CHICAGO.

PASSENGERS GOING WEST! To Missouri, Kansas, Nebraska, Colorado or New Mexico, Should Buy Tickets via the Short Route

HANNIBAL & ST. JOSEPH R. R. LINE.

Three Express Trains from Quincy or Macon to St. Joseph.

ALSO DIRECT

To Kansas City

WITHOUT CHANGE OF CARS!

CONNECTIONS ARE CLOSE AND DIRECT FOR

ATCHISON, WESTON & LEAVENWORTH.

CONNECTIONS:

AT KANSAS CITY, with Kansas Pacific Railway, for Lawrence, Ottawa, Topeka, Fort Riley Junction City, Fort Hays, Sheridan, &c.

AT KANSAS CITY, with Kansas City, Fort Scott, and Galveston Railroad, for Fort Scott, Fort Gibson, Galveston, &c.

AT ST. JOSEPH, with St. Joseph & Council Bluffs Railroad, ALL RAIL from St. Joseph to

Nebraska City, Council Bluffs & Omaha.

AT OMAHA, with Nebraska Union Pacific Railroad, for Fort Kearney, Julesburg, Cheyenne, Laramie, Benton, &c.

AT COUNCIL BLUFFS, for Sioux City, all Rail.

By this Line, passengers have choice of Overland Routes, either via Smoky Hill or Platte Route To Denver, Central City, Salt Lake, Sacramento, California and all points in the Mining Regions.

Daily Overland Coaches via Smoky Hill Route leave Sheridan, end of U. P. R. R., for Santa Fe and New Mexico.

Through Tickets for Sale at all Ticket Offices.

P. B. GROAT, Gen. Ticket Agent. GEO. H. NETTLETON, Gen. Supt.

HENRY STARRING, Gen. Agent, Chicago.

Old, Reliable, Air-Line Route!

CHICAGO, ALTON & ST. LOUIS R. R.

SHORTEST, QUICKEST AND ONLY DIRECT ROAD TO

BLOOMINGTON, SPRINGFIELD, JACKSONVILLE, ALTON,

AND ST. LOUIS!

WITHOUT CHANGE OF CARS.

THE ONLY ROAD MAKING IMMEDIATE CONNECTIONS AT ST. LOUIS,
WITH MORNING AND EVENING TRAINS

—FOR—

ATCHISON, LEAVENWORTH, KANSAS CITY,

LAWRENCE, TOPEKA, MEMPHIS, NEW ORLEANS,

AND ALL POINTS SOUTH AND SOUTHWEST.

TRAINS leave Chicago from the West-side Union Depot, near Madison Street Bridge.

EXPRESS MAIL, [Except Sundays].	8:10 A. M.
LIGHTNING EXPRESS, [Except Saturdays and Sundays].	9:50 P. M.
NIGHT EXPRESS, [Except Saturdays].	6:00 P. M.
JOLIET ACCOMMODATION, [Except Sundays].	4:40 P. M.
JACKSONVILLE EXPRESS, [Daily].	6:00 P. M.

Trains arrive at Chicago at 8:00 P. M., 8:30 A. M. and 6:00 A. M. Joliet Accom., 9:40 A. M.

This is the ONLY LINE between CHICAGO & ST. LOUIS RUNNING

PULLMAN'S PALACE SLEEPING AND CELEBRATED DINING CARS!

BAGGAGE CHECKED THROUGH.

Through Tickets can be had at the Company's office, No. 55 Dearborn street, Chicago, or at the Depot, corner of West Madison and Canal streets, and at all principal Ticket Offices in the United States and Canada. Rates of Fare and Freights as low as by any other Route.

A. NEWMAN, Gen. Pass. Agent.

J. C. McMULLIN, Gen. Supt.

North Missouri R. R.
PASSENGERS FOR
KANSAS AND THE WEST,

ARE REMINDED THAT

THE NORTH MISSOURI R. R.

IS
11 MILES SHORTER than any other Route!

St. Louis and Kansas City.

15 Miles Shorter between ST. LOUIS and LEAVENWORTH

AND

49 MILES SHORTER TO ST. JOSEPH!

THAN ANY OTHER LINE OUT OF ST. LOUIS.

Three Through Express Trains Daily!

Pullman's Celebrated Palace Sleeping Cars on all Night Trains!

FOR TICKETS, apply at all Railroad Ticket Offices, and see that you get your Tickets via St. Louis and North Missouri Railroad.

C. N. PRATT, Gen. Eastern Agt.,

S. H. KNIGHT, Gen. Superintendent,

111 Dearborn st. CHICAGO.

ST. LOUIS.

JAS. CHARLTON, Gen. Pass. and Ticket Agt., St. Louis.

Pacific Railroad of Missouri.
THE MOST DIRECT AND RELIABLE ROUTE FROM ST. LOUIS THROUGH TO
KANSAS CITY, LEAVENWORTH & ATCHISON,
WITHOUT CHANGE OF CARS!

CLOSE CONNECTIONS AT KANSAS CITY with Missouri Valley, Missouri River, Ft. Scott & Gulf, and Kansas Pacific R. Y., for Weston, St. Joseph, Junction City, Fort Scott, Lawrence, Topeka, Sheridan, Denver, Fort Union, Santa Fe, and

ALL POINTS WEST!

At SEDALIA, WARRENSBURG and PLEASANT HILL, with Stage Lines for Warsaw, Quincy, Bolivar, Springfield, Clinton, Osceola, Lamar, Carthage, Granby, Neosho, Baxter Springs, Fort Gibson, Fort Smith, Van Buren, Fayetteville, Bentonville.

PALACE SLEEPING CARS on all NIGHT TRAINS.

Baggage Checked Through Free!

THROUGH TICKETS for sale at all the Principal Railroad Offices in the United States and Canada. Be Sure and Get your Tickets over the PACIFIC R. R. OF MISSOURI.

W. B. HALE, Gen. Pass. and Ticket Agt.

THOS. MCKISSOCK, General Superintendent.

**LAKE SHORE
— AND —
MICHIGAN SOUTHERN R.W.**

THE GREAT THROUGH LINE BETWEEN
CHICAGO, BUFFALO & NEW YORK,
WITHOUT CHANGE!

AND THE ONLY RAILWAY
RUNNING PALACE COACHES THROUGH!
— BETWEEN —

CHICAGO & NEW YORK, via BUFFALO
WITHOUT TRANSFER OF PASSENGERS!

All Trains Stop at Twenty-Second Street to Take and Leave Passengers.
Baggage Checked at that Station for all Points East.

4 EXPRESS TRAINS DAILY, [Sundays Excepted,] Leave
CHICAGO from the New Depot, on Van Buren St., at the head of La Salle Street, as follows

7:30 A. M. MAIL TRAIN.
VIA OLD ROAD AND AIR LINE. SUNDAYS EXCEPTED.

Leaves 311 Street 7:15 A. M. Stops at all Stations. Arrives—Toledo, 6:20 P. M.

11:30 A. M. SPECIAL NEW YORK EXPRESS.
A AIR LINE. SUNDAYS EXCEPTED.

Leaves—Twenty-Second Street, 11:45 A. M. Arrives—Elkhart, 2:55 P. M.; Cleveland 10:40 P. M.; Buffalo, 4:10 A. M.; New York, 5:30 P. M.; (Chicago Time) Boston, 11:45 P. M.

This Train has PALACE SLEEPING COACH Attached, Running
THROUGH TO ROCHESTER, WITHOUT CHANGE!

IN DIRECT CONNECTION WITH

Wagner's Celebrated Drawing-Room Coaches on N. Y. Central R. R.
Only Thirty Hours, Chicago to New York!

5:15 P. M. ATLANTIC EXPRESS (Daily),
VIA OLD ROAD.

Leave—Twenty-Second Street 5:30 P. M. Arrives—Laporte, 8:10 P. M. (Stops 20 minutes or Supper); arrives at Toledo, 2:50 A. M.; Cleveland, 7:35 A. M. (30 minutes for Breakfast); arrives at Buffalo, 1:50 P. M.; Rochester, 5:10 P. M. (20 minutes for Supper); connects with Sleeping Coach running Through from Rochester to Boston Without Change, making but One Change between Chicago and Boston.

NEW AND ELEGANT SLEEPING COACH Attached to this Train, Running
THROUGH from CHICAGO TO NEW YORK WITHOUT CHANGE! Arrives
at NEW YORK, 6:40 A. M.

9:00 P. M. NIGHT EXPRESS
VIA AIR LINE. (DAILY EXCEPT SAT. & SUN.)

Leaves—Twenty-Second Street, 9:15 P. M. Arrives—Toledo, 6:00 A. M. (90 minutes for Breakfast); arrives at Cleveland, 10:35 A. M.; Buffalo, 5:30 P. M.; New York, 11:00 A. M.; Boston, 3:50 P. M.

KALAMAZOO DIVISION.

Leave Chicago 11:30 A. M. Arrive at Kalamazoo 6:05 P. M.; Grand Rapids, 9:25 P. M.

Leave Chicago 9:00 P. M. Arrive at Kalamazoo 6:50 A. M.; Grand Rapids, 9:40 A. M.

Elkhart Accommodation leaves Chicago, 3:30 P. M. Arrives at Elkhart, 8:20 P. M.

There being no heavy grades to overcome, or mountains to cross, the road bed and track being the smoothest and most perfect of any railway in the United States, this Company run their trains at a high rate of speed with perfect safety.

Travelers who wish to SAVE TIME and make SURE CONNECTIONS, purchase Tickets via

LAKE SHORE & MICHIGAN SOUTHERN R.Y.

THE ONLY LINE RUNNING THROUGH BETWEEN CHICAGO AND BUFFALO, WITHOUT TRANSFER, and in Direct Connection with NEW YORK CENTRAL RAILROAD and ERIE RAILWAY.

General Ticket Office for Chicago, No. 56 Clark Street.

CHAS. F. HATCH,
General Superintendent, CLEVELAND, OHIO

F. E. MORSE,
General Western Passenger Agent, Chicago.

ILLINOIS CENTRAL RAILROAD.

PASSENGER TRAINS LEAVE CHICAGO FROM THE GREAT CENTRAL DEPOT, FOOT OF LAKE ST

**ST. LOUIS AND CHICAGO
THROUGH LINE.**

9:30 A. M. DAY EXPRESS Sundays Excepted.
Arriving in ST. LOUIS at 10:15 P. M.

This Train Reaches St. Louis ONE HOUR & FIFTEEN MINUTES in Advance of any other Route!

8:30 P. M. FAST LINE. Saturdays Excepted.
Arriving at ST. LOUIS at 8:00 A. M.

AT ST. LOUIS, Direct Connections are Made for
Jefferson City, Sedalia, Pleasant Hill, Macon, Kansas City,
LEAVENWORTH, ST. JOSEPH & ATCHISON,

—Connecting at KANSAS CITY for—
LAWRENCE, TOPEKA, JUNCTION CITY, SALINA, SHERIDAN, &c.

CAIRO, MEMPHIS AND NEW ORLEANS LINE.

9:30 A. M. CAIRO MAIL, Sundays Excepted.
Arriving at Cairo 2:00 A. M., Memphis 12:40 P. M., Mobile 9:40 A. M., Vicksburg 9:30 A. M., New Orleans 11:10 A. M.

8:30 P. M. CAIRO EXPRESS, Except Saturdays.
Arriving at Cairo 3:15 P. M., Memphis 3:30 A. M., Vicksburg 5:00 P. M., New Orleans 1:30 A. M.

4:45 P. M. CHAMPAIGN PASSENGER,
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	*8:00 A. M.	*9:15 A. M.			
		*10:15 A. M.	HYDE PARK TRAIN,...		
HYDE PARK TRAIN...	*10:10 P. M.	*1:50 P. M.	HYDE PARK TRAIN,...	*10 P. M.	*7:35 P. M.

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(SUNDAYS EXCEPTED.)

Arrives DETROIT at 5:40 P. M.

11:30 A. M. SPECIAL NEW YORK & BOSTON EXP.
(SUNDAYS EXCEPTED.) Arrives at Michigan City 1:18 P. M.; New Buffalo 1:33, Niles 2:15, [Dinner], Kalamazoo 3:39 P. M.; Battle Creek 4:28, Marshall 4:48, Jackson 5:45, Detroit 7:55, London 12:05, A. M. Hamilton 2:35 A. M.; Toronto 9:30, Suspension Bridge 3:55, Rochester 7:00 A. M.; Albany, 2:00 P. M.; NEW YORK, 6:25, BOSTON, 11:50 P. M. This train connects at ROCHESTER (7:00 A. M.) with

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4:30 P. M. AFTERNOON EXPRESS.
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